Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products

**RISK ASSESSMENT OF A BIOCIDAL PRODUCT FOR NATIONAL AUTHORISATION APPLICATIONS**

Koranol Holzbau Grund

Product type(s) PT 8

IPBC, Permethrin and Propiconazole as included in the Union list of approved active substances

Case Number in R4BP: BC-XJ023958-13

Evaluating Competent Authority: Ctgb, Netherlands

Date: October 2020

Table of Contents

[1 CONCLUSION 6](#_Toc38970450)

[2 ASSESSMENT REPORT 8](#_Toc38970451)

[2.1 Summary of the product assessment 8](#_Toc38970452)

[2.1.1 Administrative information 8](#_Toc38970453)

[2.1.1.1 Identifier of the product 8](#_Toc38970454)

[2.1.1.2 Authorisation holder 8](#_Toc38970455)

[2.1.1.3 Manufacturer of the product 8](#_Toc38970456)

[2.1.1.4 Manufacturers of the active substances 8](#_Toc38970457)

[2.1.2 Product composition and formulation 10](#_Toc38970458)

[2.1.2.1 Identity of the active substances 10](#_Toc38970459)

[2.1.2.2 Candidate(s) for substitution 11](#_Toc38970460)

[2.1.2.3 Qualitative and quantitative information on the composition of the biocidal product 12](#_Toc38970461)

[2.1.2.4 Information on technical equivalence 12](#_Toc38970462)

[2.1.2.5 Information on the substance(s) of concern 13](#_Toc38970463)

[2.1.2.6 Endocrine disrupting properties 13](#_Toc38970464)

[2.1.2.7 Type of formulation 13](#_Toc38970465)

[2.1.3 Hazard and precautionary statements 13](#_Toc38970466)

[2.1.4 Authorised use(s) 14](#_Toc38970467)

[2.1.4.1 Use description 14](#_Toc38970468)

[2.1.4.2 Use-specific instructions for use 15](#_Toc38970469)

[2.1.4.3 Use-specific risk mitigation measures 16](#_Toc38970470)

[2.1.4.4 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 16](#_Toc38970471)

[2.1.4.5 Where specific to the use, the instructions for safe disposal of the product and its packaging 16](#_Toc38970472)

[2.1.4.6 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 16](#_Toc38970473)

[2.1.4.7 Use-specific instructions for use 17](#_Toc38970474)

[2.1.4.8 Use-specific risk mitigation measures 17](#_Toc38970475)

[2.1.4.9 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 17](#_Toc38970476)

[2.1.4.10 Where specific to the use, the instructions for safe disposal of the product and its packaging 18](#_Toc38970477)

[2.1.4.11 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 18](#_Toc38970478)

[2.1.4.12 Use-specific instructions for use 18](#_Toc38970479)

[2.1.4.13 Use-specific risk mitigation measures 19](#_Toc38970480)

[2.1.4.14 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 19](#_Toc38970481)

[2.1.4.15 Where specific to the use, the instructions for safe disposal of the product and its packaging 19](#_Toc38970482)

[2.1.4.16 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 19](#_Toc38970483)

[2.1.4.17 Use-specific instructions for use 20](#_Toc38970484)

[2.1.4.18 Use-specific risk mitigation measures 21](#_Toc38970485)

[2.1.4.19 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 21](#_Toc38970486)

[2.1.4.20 Where specific to the use, the instructions for safe disposal of the product and its packaging 21](#_Toc38970487)

[2.1.4.21 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 21](#_Toc38970488)

[2.1.4.22 Use-specific instructions for use 22](#_Toc38970489)

[2.1.4.23 Use-specific risk mitigation measures 23](#_Toc38970490)

[2.1.4.24 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 23](#_Toc38970491)

[2.1.4.25 Where specific to the use, the instructions for safe disposal of the product and its packaging 23](#_Toc38970492)

[2.1.4.26 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 23](#_Toc38970493)

[2.1.4.27 Use-specific instructions for use 24](#_Toc38970494)

[2.1.4.28 Use-specific risk mitigation measures 25](#_Toc38970495)

[2.1.4.29 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 25](#_Toc38970496)

[2.1.4.30 Where specific to the use, the instructions for safe disposal of the product and its packaging 25](#_Toc38970497)

[2.1.4.31 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 25](#_Toc38970498)

[2.1.4.32 Use-specific instructions for use 26](#_Toc38970499)

[2.1.4.33 Use-specific risk mitigation measures 27](#_Toc38970500)

[2.1.4.34 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 27](#_Toc38970501)

[2.1.4.35 Where specific to the use, the instructions for safe disposal of the product and its packaging 27](#_Toc38970502)

[2.1.4.36 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage 27](#_Toc38970503)

[2.1.5 General directions for use 28](#_Toc38970504)

[2.1.5.1 Instructions for use 28](#_Toc38970505)

[2.1.5.2 Risk mitigation measures 28](#_Toc38970506)

[2.1.5.3 Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment 28](#_Toc38970507)

[2.1.5.4 Instructions for safe disposal of the product and its packaging 29](#_Toc38970508)

[2.1.5.5 Conditions of storage and shelf-life of the product under normal conditions of storage 29](#_Toc38970509)

[2.1.6 Other information 29](#_Toc38970510)

[2.1.7 Packaging of the biocidal product 31](#_Toc38970511)

[2.1.8 Documentation 31](#_Toc38970512)

[2.1.8.1 Data submitted in relation to product application 31](#_Toc38970513)

[2.1.8.2 Access to documentation 32](#_Toc38970514)

[2.2 Assessment of the biocidal product (family) 33](#_Toc38970515)

[2.2.1 Intended use(s) as applied for by the applicant 33](#_Toc38970516)

[2.2.2 Physical, chemical and technical properties 36](#_Toc38970517)

[2.2.3 Physical hazards and respective characteristics 43](#_Toc38970518)

[2.2.4 Methods for detection and identification 44](#_Toc38970519)

[2.2.5 Efficacy against target organisms 47](#_Toc38970520)

[2.2.5.1 Function and field of use 47](#_Toc38970521)

[2.2.5.2 Organisms to be controlled and products, organisms or objects to be protected 48](#_Toc38970522)

[2.2.5.3 Effects on target organisms, including unacceptable suffering 48](#_Toc38970523)

[2.2.5.4 Mode of action, including time delay 48](#_Toc38970524)

[2.2.5.5 Efficacy data 49](#_Toc38970525)

[2.2.5.6 Occurrence of resistance and resistance management 52](#_Toc38970526)

[2.2.5.7 Known limitations 52](#_Toc38970527)

[2.2.5.8 Evaluation of the label claims 53](#_Toc38970528)

[2.2.5.9 Relevant information if the product is intended to be authorised for use with other biocidal product(s) 56](#_Toc38970529)

[2.2.6 Risk assessment for human health 57](#_Toc38970530)

[2.2.6.1 Assessment of effects on Human Health 57](#_Toc38970531)

[2.2.6.2 Exposure assessment 74](#_Toc38970532)

[2.2.6.3 Risk characterisation for human health 121](#_Toc38970533)

[2.2.7 Risk assessment for animal health 147](#_Toc38970534)

[2.2.8 Risk assessment for the environment 147](#_Toc38970535)

[2.2.8.1 Effects assessment on the environment 147](#_Toc38970536)

[2.2.8.2 Exposure assessment 156](#_Toc38970537)

[2.2.8.3 Risk characterisation 181](#_Toc38970538)

[2.2.9 Measures to protect man, animals and the environment 201](#_Toc38970539)

[2.2.10 Assessment of a combination of biocidal products 205](#_Toc38970540)

[3 Annexes 206](#_Toc38970541)

[3.1 List of studies for the biocidal product 206](#_Toc38970542)

[3.1.1 Comparative assessment 232](#_Toc38970543)

[3.2 Output tables from exposure assessment tools 233](#_Toc38970544)

[3.2.1 Human Health Risk Assessment 233](#_Toc38970545)

[3.2.2 Environmental Risk Assessment 284](#_Toc38970546)

[3.3 New information on the active substance 284](#_Toc38970547)

[3.4 Residue behaviour 284](#_Toc38970548)

[3.5 Summaries of the efficacy studies (B.5.10.1-xx) 284](#_Toc38970549)

[3.6 Confidential annex 284](#_Toc38970550)

[3.7 Other 284](#_Toc38970551)

# CONCLUSION

*The CA should provide a general conclusion on the application.*

**APCP**

The biocidal product 'Koranol Holzbau Grund' is a solvent-based ready-to-use product containing as active substances 1.4 % IPBC, 0.2 % permethrin and 0.45 % propiconazole . It is not meant to be co-applied with other substances or products.

The AL formulation 'Koranol Holzbau Grund' is a slightly yellow liquid for which the physical, chemical and technical properties have been sufficiently determined in order to support an authorization.

A shelf life of 24 months in HDPE and tinplate metal cans is supported. The results of the accelerated storage tests (40 ± 0.5 °C; 8 weeks) showed no significant difference between initial and post storage properties for both tinplate metal and HDPE cans. The ambient storage test show that the product to be stable for 24 months in tinplate metal cans.

The biocidal product is not classified based on physical hazards and respective characteristics.

The HPLC-DAD method used to determine the active substances in the biocidal product has been sufficiently validated.

**Conclusion Human Health**

The solvent-based RTU product Koranol Holzbau Grund containing propiconazole, IPBC and permethrin is used by industrials, and professionals for wood preservation (use # 1-6).

The risk during the individual intended uses (use # 1-3) is acceptable for the RTU product Koranol Holzbau Grund, if appropriate protective personal equipment (gloves, coverall, eye/face protection) is used during the individual application phases.

The risk during the combined exposure of either borehole treatment or borehole injection and brushing/rolling (use # 4-7) and during sawing/sanding treated wood by professionals is acceptable for the RTU product Koranol Holzbau Grund, if appropriate protective equipment (gloves, protective clothing and eye/face protection) is used during the individual application phases.

The general public can be secondarily exposed via the oral, dermal and inhalation routes. The results of the exposure estimation are all below 31% of the respective AELs for propiconazole, IPBC and permethrin, respectively. A combined assessment is not considered to be relevant for secondary exposure.

In all general public exposure scenarios, no exceedance of the corresponding reference values for propiconazole, IPBC and permethrin was observed and, thus, the risk is acceptable.

**Conclusion Environment**

The results of the environmental risk assessment show that there is no unacceptable risk for the environment from the use of the product Koranol Holzbau Grund if the risk mitigation measurements are taken into account.

**Conclusion Efficacy**

The preventive efficacy against *Hylotrupes bajulus L.*, wood discolouring fungi, wood rotting fungi and termites (genus *Reticulitermes*) has been shown in the provided efficacy studies at an application rate of 100 ml/m² (without termites) and 250 ml/m2 (including termites). The efficacy data provided is sufficient to authorize a claim against *Hylotrupes bajulus,* wood discolouring fungi, wood rotting fungi and termites (genus *Reticulitermes*) for preventive use on wood in Use Classes 1, 2 and 3.

The curative efficacy against *Hylotrupes bajulus* and *Lyctus brunneus* has been shown in an efficacy study according to EN 1390 (*Hylotrupes bajulus*) and by a comparison of literature toxicity values (*Lyctus* brunneus) at an application rate of 350 ml/m². The efficacy data provided is sufficient to authorize a general claim against *Hylotrupes bajulus* and *Lyctus* brunneus for curative use.

The data provided to support the stand-alone curative use by borehole injection with or without pressure was considered insufficient. Borehole injection with or without pressure can be authorised only if the treatment is combined with a curative superficial treatment.

# ASSESSMENT REPORT

## Summary of the product assessment

### Administrative information

#### Identifier of the product

| **Identifier[[1]](#footnote-1)** | **Country (if relevant)** |
| --- | --- |
| Koranol Holzbau Grund | National authorisation: Netherlands  Mutual recognition:  Austria  Belgium  Germany |

#### Authorisation holder

|  |  |  |
| --- | --- | --- |
| **Name and address of the authorisation holder** | **Name** | Kurt Obermeier GmbH & Co. KG |
| **Address** | Berghäuser Straße 70, D-57319 Bad Berleburg |
| **Authorisation number** |  | |
| **Date of the authorisation** |  | |
| **Expiry date of the authorisation** |  | |

#### Manufacturer of the product

|  |  |
| --- | --- |
| **Name of manufacturer** | Kurt Obermeier GmbH & Co. KG |
| **Address of manufacturer** | Berghäuser Straße 70, D-57319 Bad Berleburg Germany |
| **Location of manufacturing sites** | Berghäuser Straße 70, D-57319 Bad Berleburg Germany |

#### Manufacturers of the active substances

|  |  |
| --- | --- |
| **Active substance** | IPBC, 3-iodo-2-propynylbutylcarbamate |
| **Name of manufacturer** | Troy Chemical Company BV |
| **Address of manufacturer** | Uiverlaan 12E  3145 XN Maassluis  The Netherlands |
| **Location of manufacturing sites** | 1. One Avenue L, 07105 Newark, New Jersey, United States  2. Industriepark 23, 56593 Horhausen, Germany |

|  |  |
| --- | --- |
| **Active substance** | Permethrin |
| **Name of manufacturer** | LANXESS Deutschland GmbH  Material Protection Products |
| **Address of manufacturer** | Kennedyplatz 1, 50569 Köln, Germany |
| **Location of manufacturing sites** | Bayer Vapi Private Limited  Plot # 306/3 II Phase, GIDC  Vapi – 396 195 Gujarat  India |

|  |  |
| --- | --- |
| **Active substance** | Propiconazole |
| **Name of manufacturer** | LANXESS Deutschland GmbH  Material Protection Products |
| **Address of manufacturer** | Kennedyplatz 1, 50569 Köln, Germany |
| **Location of manufacturing sites** | Syngenta Crop Protection AG  CH-4002 Basel, Switzerland  Plant location  CH-1870 Monthey, Switzerland |

### Product composition and formulation

NB: the full composition of the product according to Annex III Title 1 should be provided in the confidential annex.

Does the product have the same identity and composition as the product evaluated in connection with the approval for listing of the active substance(s) on the Union list of approved active substances under Regulation No. 528/2012?

Yes

No

#### Identity of the active substances

|  |  |
| --- | --- |
| **Main constituent(s)** | |
| **ISO name** | IPBC, 3-Iodo-2-propynyl butyl carbamate |
| **IUPAC or EC name** | 3-Iodo-2-propynyl butyl carbamate |
| **EC number** | 259-627-5 |
| **CAS number** | 55406-53-6 |
| **Index number in Annex VI of CLP** | 616-212-00-7 |
| **Minimum purity / content** | ≥98% w/w |
| **Structural formula** |  |

|  |  |
| --- | --- |
| **Main constituent(s)** | |
| **ISO name** | Permethrin |
| **IUPAC or EC name** | 3-phenoxybenzyl(1RS)-cis,trans-3-(2,2-  dichlorovinyl)-2,2-  dimethylcyclopropanecarboxylate  or  3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-  dichlorovinyl)-2,2-  dimethylcyclopropanecarboxylate |
| **EC number** | 258-067-9 |
| **CAS number** | 52645-53-1 |
| **Index number in Annex VI of CLP** | 613-058-00-2 |
| **Minimum purity / content** | ≥93% w/w sum of all permethrin isomers  The cis:trans ratio is 25:75. |
| **Structural formula** |  |

|  |  |
| --- | --- |
| **Main constituent(s)** | |
| **ISO name** | Propiconazole |
| **IUPAC or EC name** | 1-[[2-(2, 4-dichlorophenyl)-4-propyl-1,3-  dioxolan-2-yl]methyl]- 1 H-1,2,4-triazole |
| **EC number** | 262-104-4 |
| **CAS number** | 60207-90-1 |
| **Index number in Annex VI of CLP** | 613-205-00-0 |
| **Minimum purity / content** | ≥93% w/w |
| **Structural formula** |  |

#### Candidate(s) for substitution

The aforementioned active substances are not candidates for substitution.

#### Qualitative and quantitative information on the composition of the biocidal product[[2]](#footnote-2)

| **Common name** | **IUPAC name** | **Function** | **CAS number** | **EC number** | **Content (%)\*\*** |
| --- | --- | --- | --- | --- | --- |
| POLYPHASE 920L | 3-Iodo-2-propynyl butyl carbamate | Active substance in mixture | 55406-53-6 | 259-627-5 | 7.0 (technical)  1.4 (pure) |
| PREVENTOL HS 75 | 3-phenoxybenzyl(1RS)-cis,trans-3-(2,2-  dichlorovinyl)-2,2-  dimethylcyclopropanecarboxylate  or  3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-  dichlorovinyl)-2,2-  dimethylcyclopropanecarboxylate | Active substance | 52645-53-1 | 258-067-9 | 0.215 (technical)  0.2 (pure) |
| Preventol A 12-TK 50 | 1-[[2-(2, 4-dichlorophenyl)-4-propyl-1,3-  dioxolan-2-yl]methyl]- 1 H-1,2,4-triazole | Active substance in mixture | 60207-90-1 | 262-104-4 | 0.9 (technical)  0.45 (pure) |
| Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics \*) | Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics | Non-active substance | not allocated | - | < 100% \*\* |

\*) According to the note for discussion on substances of concern (SoC), CA-Nov14 Doc.5.11, the solvent "hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics" is considered as SoC.

\*\*) No quantitative risk assessment was required. For full information on the content of this SoC please refer to the confidential annex.

The exact composition of the BP is confidential and is provided in the confidential Annex of this PAR.

The FAO/WHO tolerance that applies to the products within this family is +/-15% of the declared content (products with an active substance content of up to 25 g/kg).

#### Information on technical equivalence

**Permethrin:** Obermeier is supplied by LANXESS Deutschland GmbH who make permethrin produced by BAYER available on the market. Since BAYER is one of the two initial participants for permethrin, the permethrin of BAYER is defined as reference source. Consequently information on technical equivalence is not required.

eCA remark: the production location is identical to that in the CAR for PT8.

**Propiconazole:** Obermeier is supplied by LANXESS Deutschland GmbH who make propiconazole produced by Syngenta Crop Protection AG available on the market. The role of participant was transferred to LANXESS Deutschland GmbH as of 6 April 2011 (PT9 Assessment Report on propiconazole (July 2013). Since Syngenta Crop Protection AG is the initial participant for propiconazole, the propiconazole of Syngenta is defined as reference source. Consequently information on technical equivalence is not required.

eCA remark: the production location is identical to that in the draft CAR for PT7.

**IPBC:** Obermeier is supplied by Troy Chemical Company, who make IPBC produced by Troy Chemical Company available on the market. Troy is a member of the European Union IPBC Task Force who is the participant for IPBC the IPBC of Troy is defined as reference source. Consequently information on technical equivalence is not required.

eCA remark: the production location is identical to that in the revised draft final CAR for PT6.

#### Information on the substance(s) of concern

According to the note for discussion on substances of concern (SoC), CA-Nov14-Doc.5.11, the solvent "hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics" is considered as SoC based on its classification (see Table 2.1.2.3 for more information).

#### Endocrine disrupting properties

None of the active substances or co-formulants triggered an alert for ED property at the time of the authorization. See chapter 2.2.6.1 for more information for human health or chapter 2.2.8 for more information on environment.

#### Type of formulation

|  |
| --- |
| Any other liquid (AL) |

### Hazard and precautionary statements

**Classification and labelling of the products of the family according to the Regulation (EC) 1272/2008**

|  |  |
| --- | --- |
| **Classification** | |
| Hazard category | GHS07; GHS08; GHS09 |
| Hazard statement | H304: May be fatal if swallowed and enters airways.  H317: May cause an allergic skin reaction.  H319: Cause serious eye irritation.  H360D: May damage the unborn child.  H373: May cause damage to larynx through prolonged or repeated exposure by inhalation.  H400: Very toxic to aquatic life.  H410: Very toxic to aquatic life with long lasting effects.  EUH208: Contains propiconazole and permethrin. May produce an allergic skin reaction.” |
|  | |
| **Labelling** | |
| Signal words | Danger |
| Hazard statements | H304: May be fatal if swallowed and enters airways.  H317: May cause an allergic skin reaction.  H319: Cause serious eye irritation.  H360D: May damage the unborn child  H373: May cause damage to larynx through prolonged or repeated exposure by inhalation.  H410: Very toxic to aquatic life with long lasting effects. |
| Precautionary statements | P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  P264: Wash with water thoroughly after handling.  P272: Contaminated work clothing should not be allowed out of the workplace.  P273: Avoid release to the environment.  P280: Wear protective gloves/protective clothing/eye protection/face protection.  P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.  P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  P308+P313: IF exposed or concerned: Get medical advice/attention.  P331: Do NOT induce vomiting.  P362 + P364: Take off contaminated clothing and wash it before reuse.  P405: Store locked up.  P501: Dispose of contents/container to appropriate disposal. |
| Additional labelling requirements | EUH066: Repeated exposure may cause skin dryness or cracking. |
|  | |
| Note | IPBC, propiconazole, permethrin and hydrocarbons, C10-C13, n-alakanes, isoalkanes, cyclics, <2% aromatics contribute to the classification of the mixture (Art 18 (3), CLP) |

### Authorised use(s)

#### Use description

Table 1. Use # 1 – Wood discolouring fungi, wood rotting fungi, wood destroying beetles, termites - Industrial users – Fully Automated dipping - indoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (Preservatives) |
| **Where relevant, an exact description of the authorised use** | Fungicide, insecticide |
| **Target organism (including development stage)** | *Ascomycetes* – Wood discolouring fungi - hyphae  *Basidiomycetes* – Wood rotting fungi - hyphae  *Hylotrupes* bajulus – House longhorn beetle - larvae  *Reticulitermes* - Termites (genus *Reticulitermes*) |
| **Field of use** | Indoor  Indoor application in industrial sites  Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Fully Automated dipping |
| **Application rate(s) and frequency** | Preventive treatment without protection against termites: 100 ml/m², in 1 application.  Preventive treatment with protection against termites:  250 mL/m², in 2 applications. |
| **Category(ies) of users** | Industrial |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L |

#### Use-specific instructions for use

|  |
| --- |
| The solvent-based RTU product Koranol Holzbau Grund is used undiluted for automated dipping by industrials. The transfer of the impregnation solutions to the dipping tank or bathing tray for automated dipping is done automated by connecting lines. For automated dipping, an operator using a fork-lift truck lowers the wood into the dipping tank or transfers the wood to a bathing tray. Automated dipping is a fully automated process. After the treatment, the wood is lifted out by the fork-lift truck. The wood is then transferred by the fork-lift truck to a storage area where it is placed to dry.  The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering, or not exposed to weather and wetting at all (Use Classes 1, 2 and 3). Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A top-coat must be applied to treated wood in situations where it would be exposed to weather.  All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump). Freshly treated timber must be stored after treatment under shelter and/or on impermeable hard standing to prevent direct losses to soil or water and any losses must be collected for reuse or disposal. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves andprotective clothing (material to be specified by the authorisation holder within the product information), and eye/face protection during the handling of the product or the treated timber and maintenance of the dipping tank or bathing tray.  Application solutions must be collected and reused or disposed of as hazardous waste. They must not be released to soil, ground- and surface water or any kind of sewer. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 2. Use # 2 – Wood discolouring fungi, wood rotting fungi, wood destroying beetles, termites - Industrial and professional users - Manual dipping - indoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (preservatives) |
| **Where relevant, an exact description of the authorised use** | Fungicide, insecticide |
| **Target organism (including development stage)** | *Ascomycetes* – Wood discolouring fungi - hyphae  *Basidiomycetes* – Wood rotting fungi - hyphae  *Hylotrupes* bajulus – House longhorn beetle - larvae  *Reticulitermes* - Termites (genus *Reticulitermes*) |
| **Field of use** | Indoor  Indoor application in industrial sites  Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Manual dipping |
| **Application rate(s) and frequency** | Preventive treatment without protection against termites: 100 ml/m², in 1 application.  Preventive treatment with protection against termites:  250 ml/m², in 2 applications. |
| **Category(ies) of users** | Industrial, Professional |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L  Can, Bucket, Tinplate metal: 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L  Jerry Can, Tinplate metal: 2.5 / 5 / 10 / 20 L |

#### Use-specific instructions for use

|  |
| --- |
| The solvent-based RTU product Koranol Holzbau Grund is used undiluted for manual dipping by industrials and professionals. The transfer of the impregnation solutions to the dipping tank for manual dipping is done automated by connecting lines. During manual dipping, the operator lifts and places – by hand – the wooden article into the dipping tank. The operator then pushes, using a post, the wooden article under the wood preservative in the dipping tank and/or uses a broom to brush the wood preservative onto the wooden article (the article is still in the dipping tank as the preservative is brushed on the wood). The operator then lifts manually the wooden article from the dipping tank and stacks the article to dry.    The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all (Use Classes 1, 2 and 3). Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A top-coat must be applied to treated wood in situations where it would be exposed to weather.  All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump). Freshly treated timber must be stored after treatment under shelter and/or on impermeable hard standing to prevent direct losses to soil or water and any losses must be collected for reuse or disposal. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves and protective clothing (material to be specified by the authorisation holder within the product information), and eye/face protection during the manual dipping process.  Application solutions must be collected and reused or disposed of as hazardous waste. They must not be released to soil, ground- and surface water or any kind of sewer. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 3. Use # 3 – Wood discolouring fungi, wood rotting fungi, wood destroying beetles, termites - Industrial users - Flow coating (deluging) - indoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (Preservatives) |
| **Where relevant, an exact description of the authorised use** | Fungicide, insecticide |
| **Target organism (including development stage)** | *Ascomycetes* – Wood discolouring fungi - hyphae  *Basidiomycetes* – Wood rotting fungi - hyphae  *Hylotrupes* bajulus – House longhorn beetle - larvae- Termites (genus *Reticulitermes*) |
| **Field of use** | Indoor  Indoor application in industrial sites  Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Flow coating (deluging) |
| **Application rate(s) and frequency** | Preventive treatment without protection against termites: 100 ml/m², in 1 application.  Preventive treatment with protection against termites:  250 mL/m², in 1 application. |
| **Category(ies) of users** | Industrial |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L |

#### Use-specific instructions for use

|  |
| --- |
| The solvent-based RTU product Koranol Holzbau Grund is used undiluted for flow coating (deluging) by industrials. The transfer of the impregnation solutions to the receiving vessel for flow coating (deluging) is done automated by connecting lines. During flow coating, timber is passed through an enclosed tunnel in which the preservative is applied. The device is open at both sides, i.e. front and back side. Timber enters through the front side and the treated timber comes out dripping wet through the back side. After the flooding process treated timber is automatically transferred through a drying channel, where the wooden articles are dried with a warm air stream, before handled manually and before the top-coat warm air stream is applied.The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all (Use Classes 1, 2 and 3). Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A top-coat must be applied to treated wood in situations where it would be exposed to weather.  All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump). Freshly treated timber must be stored after treatment under shelter and/or on impermeable hard standing to prevent direct losses to soil or water and any losses must be collected for reuse or disposal. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves, protective clothing (coverall, material to be specified by the authorisation holder within the product information), and eye/face protection during the handling of the product or the treated timber and maintenance of machinery.  Application solutions must be collected and reused or disposed of as hazardous waste. They must not be released to soil, ground- and surface water or any kind of sewer. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

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| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 4. Use # 4 – Wood discolouring fungi, wood rotting fungi, wood destroying beetles, termites - Professional users - Brushing/roller - indoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (Preservatives) |
| **Where relevant, an exact description of the authorised use** | Fungicide, insecticide |
| **Target organism (including development stage)** | *Ascomycetes* – Wood discolouring fungi - hyphae  *Basidiomycetes* – Wood rotting fungi - hyphae  *Hylotrupes* bajulus – House longhorn beetle - larvae  *Reticulitermes* - Termites (genus *Reticulitermes*) |
| **Field of use** | Indoor  Indoor application in industrial sites  Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Brushing/rolling |
| **Application rate(s) and frequency** | Preventive without protection against termites: 100 ml/m², in 1 application.  Preventive with protection against termites:  250 mL/m², in 1-2 subsequent applications. |
| **Category(ies) of users** | Professional |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L  Can, Bucket, Tinplate metal: 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L  Jerry Can, Tinplate metal: 2.5 / 5 / 10 / 20 L |

#### Use-specific instructions for use

|  |
| --- |
| Use the solvent-based RTU product undiluted and apply to wood directly out of the original container by using a brush. After the application, clean the equipment with synthetic resin thinners or brush cleaner. The product may only be used indoors.  The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all (Use Classes 1, 2 and 3). Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A non-biocidal top-coat must be applied as part of a treatment system prior to use of the treated timber in situations where it would be exposed to weathering. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves and protective clothing (material to be specified by the authorisation holder within the product information), eye protection and face protection during brushing/rolling.  Application solutions must be collected and reused or disposed of as hazardous waste. They must not be released to soil, ground- and surface water or any kind of sewer. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 5. Use # 5 – Wood destroying beetles - Professional users - Borehole filling without pressure – indoor, outdoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (Preservatives) |
| **Where relevant, an exact description of the authorised use** | Insecticide |
| **Target organism (including development stage)** | *Hylotrupes bajulus* - House longhorn beetle – larvae  *Lyctus brunneus* - Powder post beetle – larvae |
| **Field of use** | Indoor; outdoor  Curative wood preservation within the scope of an extensive curative treatment (e.g. timbered house, wooden roof frames, log house constructions) with simultaneous preventive efficacy (see preventive treatment use instructions for corresponding application method). |
| **Application method(s)** | Borehole filling without pressure |
| **Application rate(s) and frequency** | Application rate:  approx. 10 kg/m³  The application rate is to be applied in 3 subsequent applications by filling each borehole three times with approx. 20 ml product (7 ml per borehole and filling). Waiting periods of 30 min after each filling.  Distance of boreholes:  20 cm horizontal  10 cm vertical  Curative treatment by borehole filling without pressure should always be combined with a curative superficial treatment (brushing/rolling) at an application rate of 350 ml/m2 to ensure efficacy. This application rate is to be applied in 3 subsequent applications (à 100-125 ml/m² each) with waiting periods of 5 min each. |
| **Category(ies) of users** | Professional |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L  Can, Bucket, Tinplate metal: 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L  Jerry Can, Tinplate metal: 2.5 / 5 / 10 / 20 L |

#### Use-specific instructions for use

|  |
| --- |
| Use the undiluted solvent-based RTU product for borehole filling without pressure. Boreholes with a diameter between 10 and 15 mm and a depth of 80 mm are made by drilling. With the suction system, the product has to be sucked directly out of the original container. The application rate is determined in consideration of the pressure and the duration of the valve opening. Following treatment, each borehole is sealed with a wooden dowel. After the application, the sprayer and the equipment are cleaned with synthetic resin thinners or brush cleaner.  The wood to be treated must be prepared as described below:  Remove opaque painting systems, coatings or thick layer glazes, dust and dirt completely. Remove destroyed wood. Bare beetle borings in the remaining wood with a wire brush and remove the drilling dust. Permanently reinforce or replace statically weakened timber structures with previously impregnated wooden components.  Cover bituminous materials, plastics, plaster, concrete and stoneware. Do not moisten plants.  Borehole treatment should only be performed on freely accessible wooden components. Do not drill through any parts that are covered (e.g. floorboards), as the wood preservative may spread unchecked into fills. In case of subdivision area treatment, remove any fills and insulating materials and re-install only after surface drying.  Within the scope of curative treatment, all remaining and newly installed wooden components must be chemically protected against further infestation by preventive treatment (e.g. by brushing/rolling).  Do not use in residential and sleeping areas despite of active and visible infestation. Ensure adequate ventilation during application and drying time of the wood preservative. Re-use of rooms after 48 hours. After borehole treatment, the drying time can be delayed to at least 1 week.  The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all. Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water.  Can be harmful to protected species such as bats, hornets or birds. The presence of protected species in the area to be treated must be assessed prior to use of the product. Appropriate protective measures must be taken if necessary. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves and protective clothing (material to be specified by the authorisation holder within the product information), and eye/face protection during the treatment process.  During product application to timbers and whilst surfaces are drying, do not contaminate the environment. All losses of the product have to be contained by covering the ground (e.g. by tarpaulin) and disposed of in a safe way.  Do not apply near bodies of surface water or in the area of water protection zones. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 6. Use # 6 – Wood destroying beetles - Professional users - Borehole pressure injection – indoor, outdoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives |
| **Where relevant, an exact description of the authorised use** | Insecticide |
| **Target organism (including development stage)** | *Hylotrupes bajulus* - House longhorn beetle – larvae  *Lyctus brunneus* - Powder post beetle – larvae |
| **Field of use** | Indoor; outdoor  Curative wood preservation within the scope of an extensive curative treatment (e.g. timbered house, wooden roof frames, log house constructions) with simultaneous preventive efficacy (see preventive treatment use instructions for corresponding application method). |
| **Application method(s)** | Borehole pressure injection |
| **Application rate(s) and frequency** | Application rate:  approx. 10 kg/m³  The application rate is to be applied in 1 application by injection of approx. 20 ml product into each borehole by using an wood injector.  Distance of boreholes:  20 cm horizontal  10 cm vertical  Curative treatment by borehole pressure injection should always be combined with a curative superficial treatment (brushing/rolling) at an application rate of 350 ml/m2 to ensure efficacy. This application rate is to be applied in 3 subsequent applications (à 100-125 ml/m² each) with waiting periods of 5 min each. |
| **Category(ies) of users** | Professional |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L  Can, Bucket, Tinplate metal: 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L  Jerry Can, Tinplate metal: 2.5 / 5 / 10 / 20 L |

#### Use-specific instructions for use

|  |
| --- |
| Use the undiluted solvent-based RTU product for borehole pressure injection. Boreholes with a diameter between 8 and 12 mm and a depth of 80 mm are made by drilling. A drive-in packer (wood injector) with check valve and a connection for the injection head has to be inserted into each borehole. The product is a ready-to-use formulation and has to be applied undiluted by injection to the drills using a wood injector with a low-pressure airless sprayer (4-5 bar), including a suction system, pressure control valve and a spray nozzle with mouth piece. With the suction system, the product has to be sucked directly out of the original container. The application rate is determined in consideration of the pressure and the duration of the valve opening. After the application, the sprayer and the spray equipment are cleaned with synthetic resin thinners or brush cleaner.  The wood to be treated must be prepared as described below:  Remove opaque painting systems, coatings or thick layer glazes, dust and dirt completely. Remove destroyed wood. Bare beetle borings in the remaining wood with a wire brush and remove the drilling dust. Permanently reinforce or replace statically weakened timber structures with previously impregnated wooden components.  Cover bituminous materials, plastics, plaster, concrete and stoneware. Do not moisten plants.  Borehole treatment should only performed on freely accessible wooden components. Do not drill through any parts that are covered (e.g. floorboards), as the wood preservative may spread unchecked into fills. In case of subdivision area treatment, remove any fills and insulating materials and re-install only after surface drying.  Within the scope of curative treatment, all remaining and newly installed wooden components must be chemically protected against further infestation by preventive treatment (e.g. by brushing/rolling).  Do not use in residential and sleeping areas despite of active and visible infestation. Ensure adequate ventilation during application and drying time of the wood preservative. Re-use of rooms after 48 hours. After borehole treatment, the drying time can be delayed to at least 1 week.  The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all. Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water.  Can be harmful to protected species such as bats, hornets or birds. The presence of protected species in the area to be treated must be assessed prior to use of the product. Appropriate protective measures must be taken if necessary. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves and protective clothing (material to be specified by the authorisation holder within the product information), and eye/face protection during the treatment process.  During product application to timbers and whilst surfaces are drying, do not contaminate the environment. All losses of the product have to be contained by covering the ground (e.g. by tarpaulin) and disposed of in a safe way.  Do not apply near bodies of surface water or in the area of water protection zones. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

Table 7. Use # 7 – Wood destroying beetles - Professional users - Brushing/roller – indoor, outdoor

|  |  |
| --- | --- |
| **Product Type** | PT8 – Wood preservatives (Preservatives) |
| **Where relevant, an exact description of the authorised use** | Insecticide |
| **Target organism (including development stage)** | *Hylotrupes bajulus* - House longhorn beetle – larvae  *Lyctus brunneus* - Powder post beetle – larvae |
| **Field of use** | Indoor; outdoor  Curative wood preservation within the scope of an extensive curative treatment (e.g. timbered house, wooden roof frames, log house constructions) with simultaneous preventive efficacy (see preventive treatment use instructions for corresponding application method). |
| **Application method(s)** | Brushing/rolling |
| **Application rate(s) and frequency** | Curative: 350 mL/m², in 3 subsequent applications. |
| **Category(ies) of users** | Professional |
| **Pack sizes and packaging material** | Drum, Tinplate metal: 200 L  IBC (intermediate bulk container), Plastic (HDPE): 600 / 1000 L  Can, Bucket, Tinplate metal: 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L  Jerry Can, Tinplate metal: 2.5 / 5 / 10 / 20 L |

#### Use-specific instructions for use

|  |
| --- |
| Use the solvent-based RTU product undiluted and apply to wood directly out of the original container by using a brush. The application rate has to be determined in consideration of the surface to be treated. After the application, clean the equipment with synthetic resin thinners or brush cleaner.  The wood to be treated must be prepared as described below:  Remove opaque painting systems, coatings or thick layer glazes, dust and dirt completely. Remove destroyed wood. Bare beetle borings in the remaining wood with a wire brush and remove the drilling dust. Permanently reinforce or replace statically weakened timber structures with previously impregnated wooden components.  Cover bituminous materials, plastics, plaster, concrete and stoneware. Do not moisten plants.  Within the scope of curative treatment, all remaining and newly installed wooden components must be chemically protected against further infestation by preventive treatment (e.g. by brushing/rolling).  Do not use in residential and sleeping areas despite of active and visible infestation. Ensure adequate ventilation during application and drying time of the wood preservative. Re-use of rooms after 48 hours.  The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all. Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A non-biocidal top-coat must be applied as part of a treatment system prior to use of the treated timber in situations where it would be exposed to weathering.  Can be harmful to protected species such as bats, hornets or birds. The presence of protected species in the area to be treated must be assessed prior to use of the product. Appropriate protective measures must be taken if necessary. |

#### Use-specific risk mitigation measures

|  |
| --- |
| Use protective gloves and protective clothing (material to be specified by the authorisation holder within the product information), and eye/face protection during brushing/rolling.  During product application to timbers and whilst surfaces are drying, do not contaminate the environment. All losses of the product have to be contained by covering the ground (e.g. by tarpaulin) and disposed of in a safe way.  Do not apply near bodies of surface water or in the area of water protection zones. |

#### Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the instructions for safe disposal of the product and its packaging

|  |
| --- |
| See general directions for use (section 2.1.5). |

#### Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| See general directions for use (section 2.1.5). |

### General directions for use

#### Instructions for use

|  |
| --- |
| The product is for use on timbers not in ground contact, either continually exposed to the weather or protected from the weather but subject to frequent weathering or not exposed to weather and wetting at all (Use Classes 1, 2 and 3 for protective treatment). Treated timber must not be used in external situations where it is in contact with the ground and permanently exposed to wetting, or in permanent contact with fresh or salt water. A top-coat must be applied to treated wood in situations where it would be exposed to weather. |

#### Risk mitigation measures

|  |
| --- |
| Wash hands and exposed skin before meal and after use.  Do not contaminate foodstuffs, eating utensils or food contact surfaces.  Do not contaminate ground, water bodies or watercourses with chemicals or used container.  Do not contaminate plant life and cover fish ponds before application. Do not empty into drains.  Ensure adequate ventilation during and after the application, until treated surfaces have dried.  Do not use on wood which may come in direct contact with food, feeding stuff and livestock animals.  Keep children and pets away from treated structures until dried  Avoid prolonged contact of pets, specifically cats, with treated structures. |

#### Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

|  |
| --- |
| **Description of first aid measures**  **General information:** Take off contaminated clothing. When in doubt or if symptoms are observed, get medical advice. Never give anything by mouth to an unconscious person or a person with cramps.  **If inhaled:** Remove person to fresh air and keep comfortable for breathing.  **If on skin:** After contact with skin, wash immediately with plenty of water and soap. In case of skin reactions, consult a physician.  **If in eyes:** Rinse cautiously with water for several minutes. In case of eye irritation consult an ophthalmologist.  **If swallowed:** Rinse mouth. Do NOT induce vomiting.  **Self-protection of the first aider:** First aider: Pay attention to self-protection!  **Information to physician:** Treatment: Treat symptomatically.  **Most important symptoms and effects, both acute and delayed**  Pyrethroids may cause paresthesia (burning and prickling of the skin without irritation). If symptoms persist: Get medical advice.  May cause an allergic skin reaction. May be fatal if swallowed and enters airways. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking. May cause damage to larynx through prolonged or repeated exposure.  **Indication of any immediate medical attention and special treatment needed:** None  **Protective measures:** Use only in well-ventilated areas. Do not breathe gas/fumes/vapour/spray.  **Accidental release measures**  **Personal precautions, protective equipment and emergency procedures:** Take the precautions customary when handling chemicals. Use personal protectionequipment.  **Environmental precautions:** Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers).  **Methods and material for containment and cleaning up:** Take up mechanically. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.  **Stability and reactivity**:  **Reactivity**: No dangerous reactions known.  **Chemical stability**: The product is chemically stable under recommended conditions of storage, use and temperature.  **Possibility of hazardous reactions:** No dangerous reactions known.  **Conditions to avoid:** Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges.  **Incompatible materials:** Oxidising agent, strong. |

#### Instructions for safe disposal of the product and its packaging

|  |
| --- |
| Waste disposal according to Directive 2008/98/EC, covering waste and dangerous waste. Consult the appropriate local waste disposal expert about waste disposal.  The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Handle contaminated packages in the same way as the substance itself. |

#### Conditions of storage and shelf-life of the product under normal conditions of storage

|  |
| --- |
| 24 months shelf-life  Keep/store only in the original container protected from frost. Keep/store below 30°C. Keep away from direct sunlight. |

### Other information

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Application codes   |  |  |  | | --- | --- | --- | | **Categories** | **Matrix wording** | **Code for product** | | User category | Industrial  Professional | A.20  A.30 | | Wood category | Softwood  Hardwood | B.10  B.20 | | Wood product | Solid wood / Reconstituted solid wood / Panels Plywood panels / OSB panels / Particles panels Fibers panels | C.10 / C.11 / C.20/ C.21 / C.22 / C.23 /C.24 | | Application aim and field of use | Preventive treatment / blue stain in service  Preventive treatment - use classes 1, 2, 3 (3.1 & 3.2) | D.30  D.40 - E.10, E.20, E.30 (E.31 & E.32) | | Curative treatment / wood in service | D.50 | | Method of application and rate | Superficial application/ brush/roller/pad treatment  Superficial application/flow coat/aspersion  Superficial application / dipping treatment  Injection | F.10  F.12  F.14  F.20 | | Target organisms | Preventive treatment  Brown rot fungi  White rot fungi  Bluestain fungi  House longhorn beetle (*Hylotrupes bajulus*)  Termites (genus *Reticulitermes*)  Curative treatment  House longhorn beetle (*Hylotrupes bajulus*)  Powder post beetles (*Lyctus brunneus*) | G.10  G.11  G.21.2  G.31  G.50  G.31  G.33 | |

### Packaging of the biocidal product

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of packaging** | **Size/volume of the packaging** | **Material of the packaging** | **Type and material of closure(s)** | **Intended user (e.g. professional, non-professional)** | **Compatibility of the product with the proposed packaging materials (Yes/No)** |
| Can, Bucket | 0.375 / 0.75 / 1 / 2.5 / 5 / 10 / 20 L | Tinplate metal | Tinplate metal  (Removable lid/rolled ring) | Professional | yes |
| Jerry can | 2.5 / 5 / 10 / 20 L | Tinplate metal | HDPE (Non-removable lid  / opening: max.  7 cm; Pleat bellows) | Professional | yes |
| Drum | 200 L | Tinplate metal | Tinplate metal  (Non-removable  head / opening:  max. 7 cm; Safety screw fittings G2 and G3/4, on opposite sides of top) | Industrial and professional | yes |
| IBC | 600 / 1000 L | HDPE | HDPE  (Screw cap DN 150 red, G2“ plug with breather and pressure compensation vent, TPE gasket with FKM membrane) | Industrial and professional | yes |

### Documentation

#### Data submitted in relation to product application

Please find a reference list attached to the Annex.

#### Access to documentation

The Letters of access for the active substance dossiers will be sent to the national authorities directly by the data owners.

## Assessment of the biocidal product (family)

### Intended use(s) as applied for by the applicant

The uses below are the ones applied for by the applicant, without any changes by the e-CA. These uses are assessed in the following chapters.

See 2.1.4 for the authorised uses, after assessment of the dossier.

**Table 4. Intended use # 1 – Automated dipping by industrials**

|  |  |
| --- | --- |
| Product Type(s) | PT8 |
| Where relevant, an exact description of the authorised use | not relevant |
| Target organism (including development stage) | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| Field of use | Preventive wood preservation in use class 1, 2 and 3. |
| Application method(s) | Automated dipping |
| Application rate(s) and frequency | Preventive: 80-100 mL/m²  With protection against termites: 250 mL/m²  The application rates are to be applied in 1 application. |
| Category(ies) of user(s) | Industrial users |
| Pack sizes and packaging material | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 5. Use # 2 – Manual dipping by industrials and professionals**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Manual dipping |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  With protection against termites: 250 mL/m²  The application rate is to be applied in 1 application. |
| **Category(ies) of users** | Industrial and professional users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 6. Use # 3 – Flow coating (deluging) by industrials**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. |
| **Application method(s)** | Flow coating (deluging) |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  With protection against termites: 250 mL/m²  The application rate is to be applied in 1 application. |
| **Category(ies) of users** | Industrial users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 7. Use # 4 – Borehole treatment by professionals**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. For a curative treatment the product could also be used for indoor and outdoor application. |
| **Application method(s)** | Borehole treatment by filling (without pressure) |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  With protection against termites: 250 mL/m²  Curative: 350 mL/m²  The application rate is to be applied in 1 application. |
| **Category(ies) of users** | Professional users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 8. Use # 5 – Borehole injection by professionals**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. For a curative treatment the product could also be used for indoor and outdoor application. |
| **Application method(s)** | Borehole injection |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  With protection against termites: 250 mL/m²  Curative: 350 mL/m²  The application rate is to be applied in 1 application. |
| **Category(ies) of users** | Professional users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 9. Use # 6 – Brushing/roller by professionals**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. For a curative treatment the product could also be used for indoor and outdoor application. |
| **Application method(s)** | Brushing/rolling |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  The application rate is applied in 1 application.  With protection against termites: 250 mL/m²  The application rate is applied in 1-2 subsequent applications.  Curative: 350 mL/m²  The application rate is applied in 2-3 subsequent applications. |
| **Category(ies) of users** | Professional users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

**Table 10. Use # 7 – Brushing/roller by non-professionals**

|  |  |
| --- | --- |
| **Product Type** | PT8 |
| **Where relevant, an exact description of the authorised use** | not relevant |
| **Target organism (including development stage)** | Effective against wood discolouring fungi such as blue stain, wood rotting fungi and wood destroying insects, including termites. |
| **Field of use** | Preventive wood preservation in use class 1, 2 and 3. For a curative treatment the product could also be used for indoor and outdoor application. |
| **Application method(s)** | Brushing/rolling |
| **Application rate(s) and frequency** | Preventive: 80-100 mL/m²  The application rate is applied in 1 application.  With protection against termites: 250 mL/m²  The application rate is applied in 1-2 subsequent applications.  Curative: 350 mL/m²  The application rate is applied in 2-3 subsequent applications. |
| **Category(ies) of users** | Non-professional users |
| **Pack sizes and packaging material** | Please see section 2.1.7 “Packaging of the biocidal product”. |

*Note NL CA: According to the RAC Opinion on propiconazole, propiconazole is to be classified as reproductive toxicant category 1B H360D (May damage the unborn child). As specified in the table 3.7.2 of the CLP Regulation (EC) 1272/2008, the concentration of propiconazole in the product (i.e. 0.45%) triggers the classification of the product with reproductive toxicant category 1B H360D (May damage the unborn child). In accordance to the BPR (Article 19, 4 (a)), a biocidal product with this classification authorisation cannot be granted for non-professional use.*

### Physical, chemical and technical properties

The physical chemical and technical properties have been tested with the product Koranol Holzbau Grund, a ready to use product, which needs not to be diluted before use. The purity of the test substance is therefore 100% of the ready to use product for all properties. In the Table therefore no further information is provided regarding “Purity of the test substance (% (w/w))”.

| **Property** | **Guideline and Method** | **Purity of the test substance (% (w/w))** | **Results** | **Reference** |
| --- | --- | --- | --- | --- |
| Physical state at 20 °C and 101.3 kPa | No guideline followed (visual and olfactory inspection) | 100;  Batch-No.: 010914 | liquid  slightly yellow | *xxxx*, No. 31/14/2313/03A |
| Colour at 20 °C and 101.3 kPa |
| Odour at 20 °C and 101.3 kPa | Odour should not be investigated for substances that are hazardous by inhalation. | | | |
| Acidity / alkalinity | No guideline | 100;  Batch-No.: 010914 | 100%: not determinable  1% dilution: 5.4 | *xxxx*, No. 31/14/2313/03A |
| Relative density / bulk density | EC A.3  DIN 51757 | 100;  Batch-No.: 120659 | The relative density of ‘Koranol Holzbau Grund' is specified as D204 liquid = 0.824. | *xxxx*, No. 2015/01411 |
| Storage stability test – **accelerated storage** | CIPAC MT 46.3 | 100;  Batch-No.: BA 1606364 | 1) Results after 8 weeks storage at 40 ± 0.5 °C in HDPE cans:  Appearance  Initial: Slightly yellow liquid  8 weeks: No change.  Packaging  Initial: No corrosion, leakage or other interaction.  8 weeks: no change; < 0.01% weight loss of package  Propiconazole content  Initial: 0.47%  8 weeks: 0.43%  (8.5% decrease)  IPBC content  Initial: 1.35%  8 weeks: 1.24%  (8.1% decrease)  Permethrin content  Initial 0.20%  8 weeks: 0.21%  (5% increase)  2) Results after 8 weeks storage at 40 ± 0.5 °C in tinplate metal cans (uncoated):  Appearance  Initial: Slightly yellow liquid  8 weeks: No change.  Packaging  Initial: No corrosion, leakage or other interaction.  8 weeks: no change; < 0.01% weight loss of package  Propiconazole content  Initial: 0.47%  8 weeks: 0.44%  (6.3% decrease)  IPBC content  Initial: 1.35%  8 weeks: 1.23%  (8.9% decrease)  Permethrin content  Initial: 0.20%  8 weeks: 0.19%  (5% decrease) | *xxxx*, HPLC-16-29-KN\_HG |
| Storage stability test – long term storage at ambient temperature | GIFAP No. 17 | 100;  Batch-No.: 010914 | Results after 6, 12 and 24 months storage at ambient temperature (20 ± 1 °C) in tinplate metal cans (uncoated):  Appearance  Initial: Liquid, slightly yellow  6m: No change.  12m: No change.  24m: No change.  Packaging  Initial: No corrosion, leakage or other interaction.  6m: no change, < 0.01% weight loss of package  12m: no change, < 0.01% weight loss of package  24m: no change, < 0.03% weight loss of package  Propiconazole content  Initial: 0.409%  6m: 0.405%  12m: 0.406%  24m: 0.400%  (2.2% decrease)  IPBC content  Initial: 1.443%  6m: 1.435%  12m: 1.415%  24m: 1.403%  (2.8% decrease)  Permethrin content  Initial: 0.218%  6m: 0.218%  12m: 0.216%  24m: 0.209%  (4,1% decrease)  The cis:trans ratio remained constant during storage.  pH100%  Initial: not determinable  6m: not determinable  12m: not determinable  24m: not determinable  pH1%  Initial: 5.4  6m: 5.4  12m: 4.8  24m: 5.8 | *xxxx*, No. 31/14/2313/03A |
| Storage stability test – low temperature stability test for liquids | The product is recommended not to be stored below 0 °C. (see statement on label: " Keep/store only in the original container protected from frost. "). | | | |
| Effects on content of the active substance and technical characteristics of the biocidal product - light | The product is recommended not to be stored under the influence of light (see statement on label: "Keep away from direct sunlight.") | | | |
| Effects on content of the active substance and technical characteristics of the biocidal product – temperature and humidity | Temperature: The product is recommended not to be stored above 30 °C (see statement on label: "Keep/store below 30°C."); Humidity: According to the assessment reports, IPBC (Denmark, 2008), permethrin (Ireland, 2014) and propiconazole (Finland, 2007) are hydrolytically stable. Therefore, no effect of humidity on content of the active substances is expected. In addition, the product is stored in sealed packaging (see statement on label: "Keep/store only in the original container protected from frost.”). | | | |
| Effects on content of the active substance and technical characteristics of the biocidal product - reactivity towards container material | GIFAP No. 17 | 100;  Batch-No.: 010914 | Results after 6, 12 and 24 months storage at ambient temperature (20 ± 1 °C) in tinplate metal cans (uncoated):  Packaging  Initial: No corrosion, leakage or other interaction.  6m: no change, < 0.01% weight loss of package  12m: no change, < 0.01% weight loss of package  24m: no change, < 0.03% weight loss of package | *xxxx*, No. 31/14/2313/03A |
| CIPAC MT 46.3 | 100; Batch-No.: BA 1606364 | 1) Results after 8 weeks storage at 40 ± 0.5 °C in HDPE cans:  Packaging  Initial: No corrosion, leakage or other interaction.  8 weeks: no change; < 0.01% weight loss of package  2) Results after 8 weeks storage at 40 ± 0.5 °C in tinplate metal cans (uncoated):  Packaging  Initial: No corrosion, leakage or other interaction.  8 weeks: no change; < 0.01% weight loss of package | *xxxx*, HPLC-16-29-KN\_HG |
| Wettability | The biocidal product is a solvent-based RTU product. Thus, testing of wettability is not applicable. | | | |
| Suspensibility, spontaneity and dispersion stability | The biocidal product is a solvent-based RTU product. Thus, testing of suspensibility, spontaneity and dispersion stability is not applicable. | | | |
| Wet sieve analysis and dry sieve test | The biocidal product is a solvent-based RTU product. Thus, wet sieve analysis and dry sieve test is not applicable. | | | |
| Emulsifiability, re-emulsifiability and emulsion stability | The biocidal product is a solvent-based RTU product. Thus, testing of emulsifiability, re-emulsifiability and emulsion stability is not applicable. | | | |
| Disintegration time | The biocidal product is a solvent-based RTU product. Thus, testing of disintegration time is not applicable. | | | |
| Particle size distribution, content of dust/fines, attrition, friability | The biocidal product is a solvent-based RTU product. No spray application is intended. Thus, particle size distribution is not applicable. | | | |
| Persistent foaming | The biocidal product is a solvent-based RTU product. Thus, testing of persistent foaming is not applicable. | | | |
| Flowability/Pourability/Dustability | The biocidal product is a solvent-based RTU product. Thus, testing of flowability is not applicable. | | | |
| Burning rate — smoke generators | The biocidal product is a solvent-based RTU product. Thus, testing of burning rate is not applicable. | | | |
| Burning completeness — smoke generators | The biocidal product is a solvent-based RTU product. Thus, testing of burning completeness is not applicable. | | | |
| Composition of smoke — smoke generators | The biocidal product is a solvent-based RTU product Thus, testing of composition of smoke is not applicable. | | | |
| Spraying pattern — aerosols | The biocidal product is a solvent-based RTU product. No spray application is intended. Thus, testing of spraying pattern is not applicable. | | | |
| Other technical characteristics | The biocidal product is a solvent-based RTU product. Testing of other technical characteristics is not applicable. | | | |
| Physical compatibility | Not applicable. The product is not recommended to be used in combination with other products. | | | |
| Chemical compatibility | Not applicable. The product is not recommended to be used in combination with other products. | | | |
| Degree of dissolution and dilution stability | The biocidal product is a solvent-based RTU product. Thus, testing of degree of dissolution and dilution stability is not applicable. | | | |
| Surface tension | OECD Guideline 115, DIN EN 14370 | 100;  Batch-No.: 120659 | The surface tension of original test substance (undiluted) is σ = 25.73 mN/m at 20.2 °C.\* | *xxxx*, No. 2015/01411 |
| Viscosity | DIN 53019  rotational viscometer | 100;  Batch-No.: 211014 | The dynamic viscosity is 0.0022 Pa\*s at 20°C  Shear rate:15.69 - 919.3 s-1  The dynamic viscosity is 0.0015 Pa\*s at 40°C.  Shear rate: 20.52 - 1275 s-1  The kinematic viscosity is calculated to be 2.68 mm2/s at 20°C.  The kinematic viscosity is calculated to be 1.86 mm2/s at 40°C. | *xxxx*, No. 02/16/PC |

\* eCA remark: Since the kinematic viscosity at 40°C is <7x10-6 m2/s, the surface tension should have been tested at 25°C. However, according to the CLP criteria, the product should be classified as an aspiration hazard (H304) based on its viscosity. Additional surface tension data at 25°C would not influence this conclusion.

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| --- |
| **Conclusion on the physical, chemical and technical properties of the product** |
| The biocidal product 'Koranol Holzbau Grund' is a solvent-based ready-to-use product. It is not meant to be co-applied with other substances or products.    Physicochemical properties:  The formulation 'Koranol Holzbau Grund' is a slightly yellow liquid. The odor was not investigated as the product contains substances which are hazardous at inhalation. The pH1% is 5.4. The relative density of the test item at 20 °C, compared to the density of water at 4 °C, is D^(20)\_4 = 0.824 . The surface tension of undiluted sample of the test item in water is 25.73 mN/m. The kinematic viscosity of the test item at 20 °C is 2.68 mm2/s. The kinematic viscosity of the test item at 40 °C is 1.86 mm2/s.    Storage stability:  The results of the ambient storage test prove the product to be stable for 24 months in tinplate metal cans. The results of the accelerated storage tests (40 ± 0.5 °C; 8 weeks) showed no difference between tinplate metal and HDPE cans.  In conclusion the provided stability data support the claimed stability of the product and the packaging (tinplate metal and HDPE) for 24 month. |

eCA remark: The surface tension should have been determined at 25°C instead of at 20°C. However, since the product will be H304classified regardless at which temperature the surface tension has been measured, provided data on surface tension are considered acceptable.

### Physical hazards and respective characteristics

Physical hazards and respective characteristics have been tested with the product Koranol Holzbau Grund a ready to use product which needs not be diluted before use. The purity of the test substance is therefore 100% of the ready to use product for all properties. In the Table therefore no further information is provided regarding “Purity of the test substance (% (w/w)”.

| **Property** | **Guideline and Method** | **Purity of the test substance (% (w/w)** | **Results** | **Reference** |
| --- | --- | --- | --- | --- |
| Explosives | Expert statement | - | None of the components have explosive properties. | *xxxx* No. 2015/01411 |
| Flammable gases | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Flammable aerosols | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Oxidising gases | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Gases under pressure | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Flammable liquids | DIN EN ISO 2719 | 100;  Batch-No.: 120659 | Flash point: 63.0 °C, non flammable liquid according to CLP classification | *xxxx*, No. 2015/01411 |
| Flammable solids | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Self-reactive substances and mixtures | Due to known experience the biocidal product is not self-reactive. None of the components has self-reactive properties. | | | |
| Pyrophoric liquids | Due to known experience the biocidal product has no pyrophoric properties. | | | |
| Pyrophoric solids | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Self-heating substances and mixtures | Due known experience the biocidal product is not known to be self-heating. None of the components has self-reactive properties. | | | |
| Substances and mixtures which in contact with water emit flammable gases | Not applicable. The product does not contain any components that in contact with water emit flammable gases. | | | |
| Oxidising liquids | Expert statement | - | No oxidizing properties | *xxxx* No. 2015/01411 |
| Oxidising solids | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Organic peroxides | Not applicable, no organic peroxides contained in the biocidal product. | | | |
| Corrosive to metals | Waiver Not applicable, formulation does not contain components that are classified to be corrosive to metals and the pH1% is 5.4. 24 months results from a long term (24 months) storage study in metal cans do not indicate signs of corrosion to packaging material. | | | |
| eCA remark: The active substances containing halogen atoms in the molecule, however the pure mixtures have not been classified as corrosive to metals. All constituents are organic liquids (no acid, no base, no complexing agents, pH 1% dilution: 5.4) and none of the constituents has been classified as corrosive to metals. A reaction of the educts which can react to metal corrosive products can be excluded. As the mixture does not contain any water may causing of drop formation which may lead to localized corrosion is not expected.  On the basis on the information provided from the applicant on the components in the mixture, the product is unlikely to meet the classification criteria for the hazard class corrosive to metals. | | | | |
| Auto-ignition temperatures of products (liquids and gases) | EC Test A.15, DIN 51794 | 100;  Batch-No.: 120659 | Auto-ignition temperature: 230 °C | *xxxx* No. 2015/01411 |
| Relative self-ignition temperature for solids | Not applicable. The biocidal product is a solvent-based RTU product. | | | |
| Dust explosion hazard | Not applicable. The biocidal product is a solvent-based RTU product. | | | |

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| **Conclusion on the physical hazards and respective characteristics of the product** |
| The tests on flammability and auto-ignition temperature of liquids as well as the expert statement on explosive and oxidising properties did not reveal any physico-chemical hazards related to the product Koranol Holzbau Grund. |

### Methods for detection and identification

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Analytical methods for the analysis of the product as such including the active substance, impurities and residues** | | | | | | | | | |
| **Analyte (type of analyte e.g. active substance)** | **Analytical method** | **Fortification range / Number of measurements** | **Linearity** | **Specificity** | **Recovery rate (%)** | | | **Limit of quantification (LOQ) or other limits** | **Reference** |
| Range | Mean | RSD |
| Koranol Holzbau Grund (active substance: IPBC) | HPLC -DAD, column: Grom-SIL 120 ODS-4 (3 µm 150\*2mm)  Eluent: 50% water (A), 50% acetonitrile (B) (0-5 min),  10%A, 90% B (5-25 min),  Flow rate: 0.2 mL/min  , SOP SAA-C-02 | 80-120% of nominal content; 2 measurements per level;  6 measurements in total | Range: 16.6-45.7 µg/mL,  y= 4.8529x + 0.3463  R²= 0.9981 | No interferences from matrix nor from the other active substances were detected. | Level 1 80 %:  97.3 – 97.4  Level 2 100 %:  99.2-99.3  Level 3 120 %:  100.3 – 100.9 | 97.35%  99.25 %  100.6 % | 0.07%  0.07 %  0.42 %  **Precission:**  1.443 % IPBC  RSD: 0.55 %  (n = 6) | Not required; method for determining active substance content in formulated product | *xxxx*, No. 31/14/2313/03A |
| Koranol Holzbau Grund (active substance: Permethrin) | HPLC -DAD, column: Grom-SIL 120 ODS-4 (3 µm 150\*2mm)  Eluent: 50% water (A), 50% acetonitrile (B) (0-5 min),  10%A, 90% B (5-25 min),  Flow rate: 0.2 mL/min  , SOP SAA-C-02 | 80-120% of nominal content ; 2 measurements per level;  6 measurements in total | Range: 20.1 – 56.2 µg/mL,  y= 77.473x + 71.227  R²= 0.9995 | No interferences from matrix nor from the other active substances were detected. | Level 1 80 %: 98.3 – 99.4%  Level 2 100 %:  98.5 - 98.7 %  Level 3 120 %:  99.9 – 99.9 % | 98.35 %  98.6 %  99.9 % | 0.07 %  0.14 %  0 %  **Precission**:  0.218 % permethrin  RSD: 0.12 %  (n = 6) | Not required; method for determining active substance content in formulated product | *xxxx*, No. 31/14/2313/03A |
| Koranol Holzbau Grund (active substance: Propiconazole) | HPLC -DAD, column: Grom-SIL 120 ODS-4 (3 µm 150\*2mm)  Eluent: 50% water (A), 50% acetonitrile (B) (0-5 min),  10%A, 90% B (5-25 min),  Flow rate: 0.2 mL/min  , SOP SAA-C-02 | 80-120% of nominal content ; 2 measurements per level;  6 measurements in total | Range: 34.5 – 95.1 µg/mL,  y= 46.658x - 34.872  R²= 0.9987 | No interferences from matrix nor from the other active substances were detected. | Level 1 80 %:  94.4 – 94.5 %  Level 2 100 %:  98.4 – 98.7 %  Level 3 120 %:  94.7 – 94.9 | 94.45 %  98.55 %  94.8 % | 0.07 %  0.2 %  0.15%  P**recission**: 0.409 % propiconazole  RSD = 0.33 %  (n = 6) | Not required; method for determining active substance content in formulated product | *xxxx*, No. 31/14/2313/03A |

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| **Analytical methods for monitoring** |

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| **Analytical methods for soil** |
| Analytical methods for the determination of the active substances in soil are described in the respective assessment reports of each active substance (permethrin: Ireland, April 2014; propiconazole: Finland, November 2007; IPBC: Denmark, February 2008). |

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| **Analytical methods for air** |
| Analytical methods for the determination of the active substances permethrin and propiconazole in air are described in the respective assessment reports of each active substance (permethrin: Ireland, April 2014; propiconazole: Finland, November 2007).  For the active substance IPBC, an analytical method for the determination in air is not necessary since IPBC is not volatile and spray applications only involve non-respirable particles. |

|  |
| --- |
| **Analytical methods for water** |
| Analytical methods for the determination of the active substances in water are described in the respective assessment reports of each active substance (permethrin: Ireland, April 2014; propiconazole: Finland, November 2007; IPBC: Denmark, February 2008). |

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| --- |
| **Analytical methods for animal and human body fluids and tissues** |
| For permethrin and propiconazole, no data are required. Neither of those active substances does classify as toxic or highly toxic. For the active substance IPBC an analytical method in animal and human body fluids is described in the IPBC assessment reports PT 6 (September 2013) and PT13 (January 2015). |

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| **Analytical methods for monitoring of active substances and residues in food and feeding stuff** |
| No data required. Proposed use is for wood preservation. No use related to food or feeding stuffs foreseen. |

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| **Conclusion on the methods for detection and identification of the product** |
| The analytical method for the detection of IPBC, propiconazole and permethrin in the formulated product was validated with respect to specificity, linearity, precision and accuracy.  Methods for substances of concern were not provided as the contents of the substances of concern are not expected to change during storage. |

### Efficacy against target organisms

#### Function and field of use

Koranol Holzbau Grund is a ready to use solvent-based wood preservation product based on the active substances permethrin, propiconazole and IPBC.

It is used for preventive treatment of wood against wood rotting and discoloring fungi, house longhorn beetle (*Hylotrupes bajulus*) and subterranean termites (genus *Reticulitermes*) by superficial application on wood for use in use classes 1, 2 and 3. The application rate for a preventive treatment is 100 ml/m2 (fungicidal and insecticidal) and 250 ml/m2 with protection against termites.

It is also applied as a curative wood preservative against house longhorn beetle (*Hylotrupes bajulus*) and powder post beetle (*Lyctus brunneus*) both indoor and outdoor with simultaneous preventive efficacy. The application rate for a curative treatment is 350 ml/m2.

The product always has to be applied with a top-coat on wood that is exposed to weathering.

The product is applied by industrial and professional users.

Application codes:

|  |  |  |
| --- | --- | --- |
| **Categories** | **Matrix wording** | **Code for product** |
| User category | Industrial  Professional | A.20  A.30 |
| Wood category | Softwood  Hardwood | B.10  B.20 |
| Wood product | Solid wood / Reconstituted solid wood / Panels Plywood panels / OSB panels / Particles panels Fibers panels | C.10 / C.11 / C.20/ C.21 / C.22 / C.23 /C.24 |
| Application aim andfield of use | Preventive treatment / blue stain in service  Preventive treatment - use classes 1, 2, 3 (3.1 & 3.2) | D.30  D.40 - E.10, E.20, E.30 (E.31 & E.32) |
| Curative treatment / wood in service | D.50 |
| Method of application and rate | Superficial application/ brush/roller/pad treatment  Superficial application/flow coat/aspersion  Superficial application / dipping treatment  Injection | F.10  F.12  F.14  F.20 |
| Target organisms | Preventive treatment  Brown rot fungi  White rot fungi  Bluestain fungi  House longhorn beetle (*Hylotrupes bajulus*)  Termites (*genus Reticulitermes*)  Curative treatment  House longhorn beetle (*Hylotrupes bajulus*)  Powder post beetle (*Lyctus brunneus*) | G.10  G.11  G.21.2  G.31  G.50  G.31  G.33 |

#### Organisms to be controlled and products, organisms or objects to be protected

The organisms to be controlled for preventive treatment are wood rotting and wood discloring fungi, house longhorn beetle (*Hylotrupes bajulus*) and subterranean termites (genus *Reticulitermes*).

The organisms to be controlled for curative use are house longhorn beetle (*Hylotrupes bajulus*) and powder post beetles (*Lyctus brunneus*).

The object to be protected is wood (more specifically wood in use classes 1, 2 and 3 for preventive use).

#### Effects on target organisms, including unacceptable suffering

The product Koranol Holzbau Grund causes mortality of wood rotting and wood discoloring fungi, house longhorn beetle (*Hylotrupes bajulus*), powder post beetles (*Lyctus brunneus*) and subterranean termites (genus *Reticulitermes*).

#### Mode of action, including time delay

The mode of action of the insecticidal active substance permethrin is a neurotoxic effect mediated through preventing the closure of the voltage-gated sodium channels in the axonal membranes.

Propiconazole is a triazole fungicide which inhibits the demethylation step in the ergosterol biosynthesis of fungi.

IPBC has a carbamate structure. The target sites of carbamates in fungi are cell membrane permeability and fatty acids (according to the information provided by FRAC (Fungicide Resistance Action Committee).

#### Efficacy data

For efficacy testing different products were used, the actual tested product for each test method is mentioned in the following table. The full compositions of the test products as well as a justification for why read-across is acceptable for the efficacy testing (according to Annex A of EN599-1) is provided in the confidential annex.

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| **Experimental data on the efficacy of the biocidal product against target organism(s)** | | | | | | | |
| **Function** | **Field of use envisaged** | **Test substance** | **Test organism(s)** | **Test method** | **Test system / concentrations applied / exposure time** | **Test results: effects** | **Reference** |
| Insecticide | Use class 3 | Koranol Holzbau Grund LÖ 4377 \* | *Hylotrupes bajulus* L. | EN 46 -1 (with EN 84) | Superficial treatment (dipping)  Application rate: 80 and 120 ml/m2  Exposure time: 4 weeks  Tested concentration: 100% (RTU)  Wood type: *Pinus sylvestris* | 100% mortality after 4 weeks at 80 ml/m2  Control survival: 96% | *xxxx*  *2010* |
| Insecticide | Use class 1,2 | Koranol Holzbau Grund LÖ 4377 \* | *Hylotrupes bajulus* L. | EN 46 -1 (with EN 73) | Superficial treatment (dipping)  Application rate:80 and 120 ml/m2  Exposure time: 4 weeks  Tested concentration: 100% (RTU)  Wood type: *Pinus sylvestris* | 100% mortality after 4 weeks at 80 ml/m2  Control survival: 98% | *xxxx*  *2010* |
| Fungicide | Use class 3 | Koranol Grund \*\* | *Coniophora puteana*  *Gloeophyllum trabeum*  *Poria placenta* | EN 113 (with EN 84) | Penetrative treatment (vacuum impregnition)  Application rate: 31.9 – 32.3 kg/m3 (equivalent to 77.4 - 78.4 ml/m2)  Exposure time: 16 weeks  Tested concentrations: 0.0, 6.7, 10.0, 13.3 and 15%  Wood type: *Pinus sylvestris* | Minimum effective dose  *C. puteana:* <32.30 kg/m³  *Poria placenta*: <32.00 kg/m³  *Gloeophyllum trabeum* <31.90 kg/m³ | *xxxx*  *2010* |
| Fungicide | Use class 2,3 | Koranol Grund \*\* | *Coniophora puteana*  *Gloeophyllum trabeum*  *Poria placenta* | EN 113 (with EN 73) | Penetrative treatment (vacuum impregnition)  Application rate:80 ml/m2  Exposure time: 16 weeks  Tested concentrations: 0.0, 6.7, 10.0, 13.3 and 15%  Wood type: *Pinus sylvestris* | Min. effective dose.  *C. puteana:* < 31.90 kg/m³  *Poria placenta*: < 32.00 kg/m³  *Gloeophyllum trabeum*: < 31.60 kg/m³ | *xxxx*  *2010* |
| Termiticide | Use class 3 | Koranol Holzbau Grund | *Reticulitermes santonensis (De Feytaud)* | EN 118 (with EN 84) | Superficial treatment (dipping)  Application rate: 250 ml/m2  Exposure time: 8 weeks  Tested concentration: 100% (RTU)  Wood type: *Pinus sylvestris* | no damage of rating > 2, only one sample rated as 2.  Control samples all rated as 4. | *xxxx*  *2011* |
| Termiticide | Use class 1,2 | Koranol Holzbau Grund | *Reticulitermes santonensis (De Feytaud)* | EN 118 (with EN 73) | Superficial treatment (dipping)  Application rate: 250 ml/m2  Exposure time: 8 weeks  Tested concentration: 100% (RTU)  Wood type: *Pinus sylvestris* | no damage of rating > 2, only one sample rated as 2.  Control samples all rated as 4. | *xxxx*  *2011* |
| Fungicide | Use class 2,3 | Koranol Grund farblos LÖ 4373 \*\*\* | *Aureobasidium pullulans*  *Sclerophoma pithyophila* | EN 152-1 | Superficial treatment (brushing)  Application rate: 97 ml/m2  Exposure time: 6 month  Wood type: *Pinus sylvestris* | Surface rating: no individual rating > or = 2.  Interior rating: zone width free of blue stain 4 – 7 mm and mean stain free depth 5.4 mm. | *xxxx* 2011 |
| Insecticide | Curative treatment | Koranol Holzbau Grund | *Hylotrupes bajulus* L. | EN 1390 | Superficial treatment (brushing)  Application rate: 350 ml/m2  Exposure time: 24 weeks  Tested concentration: 100% (RTU)  Wood type: *Pinus sylvestris* | > 98% mortality after 24 weeks  8% mortality in controls. | *xxxx*  2011 |

\*) Composition identical to Koranol Holzbau Grund

\*\*) Composition identical to Koranol Holzbau Grund without Permethrin

\*\*\*) Composition identical to Koranol Holzbau Grund without Permethrin & identical to Koranol Grund

For complete compositions of the testing products please refer to the confidential annex.

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| **Conclusion on the efficacy of the product** |
| The efficacy data provided in Section 2.2.5.5 show, that the product Koranol Holzbau Grund has preventive efficacy against wood rotting and wood discolouring fungi, house longhorn beetle (*Hylotrupes bajulus*) and termites (genus *Reticulitermes*) for wood to be applied in Use Classes 1, 2 and 3.  For curative use, the product Koranol Holzbau is efficacious against house longhorn beetle (*Hylotrupes bajulus*) and powder post beetle (*Lyctus brunneus*).  Eficacy of the intended application rates of the respective uses was demonstrated by the investigated retentions. |

#### Occurrence of resistance and resistance management

There are no reported cases of development of resistance involving the use of permethrin, propiconazole and IPBC in wood preservation.

No resistance against permethrin has been reported for woodboring beetles.

Although resistance to fungicides is a normal phenomenon embodied in the natural process of the evolution of biological systems and all DMIs (demethylation inhibitors) including propiconazole have a similar resistance risk, resistance factors may be different. There are no specific resistance cases to propiconazole reported for wood rotting and wood discolouring fungi on propiconazole-treated wood and the activity of all four isomers of propiconazole may reduce the formation of resistance.

Propiconazole is a triazole and triazole cross-resistance has been found in *Aspergillus fumigatus* (Based on CAR Propiconazole /PT7).

Some triazoles are used as medicines. Resistance of a human pathogen *Aspergillus fumigatus* to triazoles used for medical purposes has been found (e.g. casualties due to treatment failure reported in the Netherlands) and a concern about the use of triazoles in biocides and other chemicals has been raised. However, the source of the resistance is not yet clear and may also lie in agricultural or animal health use of triazoles and, therefore, no specific precautionary measurements with respect to biocide use have to be taken at this moment. Further information about the concern of cross-resistance can be found in the following publication by European Centre for Disease Prevention and Control (ECDC): <https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/risk-assessment-impact-environmental-usage-of-triazoles-on-Aspergillus-spp-resistance-to-medical-triazoles.pdf>

#### Known limitations

The product should always be applied with a top-coat on wood that is being exposed to weather.

#### Evaluation of the label claims

The following label claims will be evaluated in this section:

- preventive efficacy against wood rotting and discoloring fungi, house longhorn beetle (*Hylotrupes bajulus*), powder post beetles (*Lyctus brunneus*) and subterranean termites (genus Reticulitermes);

- curative efficacy against house longhorn beetle (*Hylotrupes bajulus*) and powder post beetle (*Lyctus brunneus*).

Claimed application rates are supported by the provided efficacy data (see conclusion on efficacy).

Preventive efficacy against wood destroying and wood discolouring fungi

To demonstrate efficacy of preventive treatment against wood rotting fungi two efficacy studies were provided. The EN113 (combined with EN73) and EN113 (combined with EN84) studies demonstrated that the product is efficacious against wood rotting fungi (*Coniophora puteana*, *Gloeophyllum trabeum* and *Poria placenta)* in penetrative treatment at a minimum effective dose of 32.3 kg/m3. This effective dose translates to a superficial application rate of 64.6 g/m². At a relative density of 0.824 this translates to an application rate of 78.4 ml/m², which is below the requested application rate of 100 ml/m². The provided efficacy studies demonstrate sufficient fungicidal efficacy for use on wood in Use Classes 2 and 3.

Efficacy against wood rotting fungi (basidiomycetes) in use class 3 is only given, when a top coat is applied after treatment.

To demonstrate efficacy against wood discolouring fungi one efficacy study was provided. The EN152 study demonstrated that the product is efficacious against wood discolouring fungi (*Aureobasidium pullulans* and *Sclerophoma pithyphila*) in superficial treatment at an application rate of 97 ml/m², which is below the requested application rate of 100 ml/m². The provided efficacy studies demonstrate efficacy for use on wood in Use Classes 2 and 3.

Preventive efficacy against woodboring beetles

To demonstrate efficacy of preventive treatment against wood destroying beetles two efficacy studies were provided. The EN46-1 (combined with EN73) and EN46-1 (combined with EN84) studies demonstrated that the product is efficacious against *Hylotrupes bajulus* in superficial application at an application rate of 80 ml/m2.

The provided efficacy studies demonstrate preventive efficacy against the house longhorn beetle (*Hylotrupes bajulus*) for use on wood in Use Classes 1, 2 and 3.

Curative efficacy against woodboring beetles

To demonstrate efficacy of curative treatment against woodboring beetles one efficacy study was provided. The EN1390 study demonstrated that the product is efficacious against *Hylotrupes bajulus* in superficial application at an application rate of 350 ml/m².

For the test according to EN 1390 an application rate of 350 ml/m² had been chosen, following the former German DIBt-registration scheme that has successfully practiced application rates from 300 to 350 ml/m² for decades. Due to the German experts opinion an application rate of 350 ml/m² is achievable using three subsequent surface applications by brushing without problems, especially on older wood, which shows enhanced penetration and higher uptake rates than new wood. Consequently, the application rate of 350 ml/m² had been tested. Considering the 350 ml/m2 is applied in multiple applications, the application rate is considered to be acceptable by the eCA.

According to EN14128 for a claim against “C-I” (all insects) curative efficacy should be demonstrated against both *Hylotrupes bajulus* and *Anobium punctatum*, unless evidence is provided that the most tolerant species was tested. No information was provided on the relative sensitivity of *Anobium punctatum* compared to *Hylotrupes bajulus*, therefore only a claim against *Hylotrupes bajulus* can be authorized.

With regard to the curative use claim against *Lyctus brunneus* the efficacy guidance part B/C (section 5.5.8.2.3.1 ) states the following: “The curative activity against *Lyctus* is not tested separately but is derived from results from testing against *Anobium punctatum* and *Hylotrupes bajulus*.”. As literature data was provided by the applicant demonstrating similar sensitivity to the active substance permethrin for *Hylotrupes bajulus* and *Lyctus brunneus* [1,2], it is considered to authorize the claim for curative efficacy against  *Lyctus brunneus.*

The provided efficacy studies demonstrate curative efficacy against house longhorn beetle (*Hylotrupes bajulus*) and, based on similar sensitivity to the active substance permethrin as demonstrated in scientific literature, powder post beetle (*Lyctus brunneus*) for use on wood at an application rate of 350 ml/m².

In Berry (1977) [1] 100% mortality of *Lyctus brunneus* larvae was demonstrated with 200 mg Permethrin/kg solution in white spirit. The application method was surface treatment (dipping) which is comparable to brushing. The wood was dipped for 1 min therefore an application rate of maximaum 90 g/m² has to be calculated.

Koranol Holzbau Grund contains 2000 mg/ kg Permethrin and the application rate is 350 ml/m². This amount is approx. 30 times higher than the published required amount in literature. Therefore the efficacy against *Lyctus brunneus* for use on wood at an application rate of 350 ml/m² is covered by scientific literature data.

Borehole Treatment by borehole filling without pressure or borehole pressure injection

To date, there is no standardized testing method in place in order to demonstrate the efficacy of the borehole treatment.

In general the experts involved in the efficacy assessment are performing a read-across from the amount of wood preservative needed to achieve efficacy by surface treatment and translate this to an application rate of 10 kg/m³. This read-across is based on a technical bulletin published by a German expert group (DGFH, Merkblatt zur Behandlung von Gefahrstellen) (attached in IUCLID section 6.7) [4].

According to technical notes of guidance and good practice a specific grid of boreholes of a specific depth is set. Different national technical notes of guidance exist throughout the EU with slight differences in borehole arrangement depending on the preferred wood dimensions used for constructions. The proposed application rate by the applicant of 10 kg/m³ is well set for a 2 to 3 time filling of the holes. E.g. in Germany, calculation of retention by filling boreholes is based on the following assumption: Holes of 10 mm in diameter are drilled 20 cm apart in fibre direction and 10 cm apart across fibre direction. Hole depth depends on the dimension of the wooden object to be treated and is usually 75 % of the wood´s thickness. For example, a realistic wooden beam of 12 cm across by 10 cm in thickness and 500 cm long (in fibre direction) would have 50 holes of 7.5 cm in depth. The volume of that beam is 0.06 m³. The volume of each hole to be filled is 5.89 cm³ (approx. 6 cm³). Total volume to be filled is thus 50 x 6 cm³ resulting in 300 cm³ to be filled twice, which adds up to 600 cm³ (600 ml). 600ml/0.06 m³ corresponds to 10.000 ml/m³ (10L/m³). With a density of 0.8 for Koranol Holzbau Grund this corresponds to 8,0 kg/m³. For Koranol Holzbau Grund the use instructions of 2 to 3 fillings covers that retention. Especially as beam of solid wood contains sapwood and heartwood (see above). Although holes might be drilled into heartwood, uptake of wood preservative only occurs in the sapwood part of the hole. Two to three fillings provide a safety margin. The professional user has to observe how fast or slow the wood preservative is delivered into the wood after the holes were filled The distribution of the wood preservative must be regarded as much faster and more homogenous compared to surface treatment, therefore sufficient efficacy is without doubt.

The applicant had launched a study to confirm this common practice using another solvent based product. The test design represented exactly the recommendations from the German expert group and the results verified the common practice of read-across. The detailed outcome of this study (BAM report no. 2012-4.1-8523) [5] is attached in IUCLID section 6.7. It was confirmed that an application rate of 10 kg/m³ results in the same mortality within the same exposure time like a surface treatment using 300 ml/m². The application rate of 10 kg/m³ was achieved by filling a borehole of 10 mm in diameter and 8 cm in depth for three times. Based on this study the test design was submitted to the European Committee for Standardisation (CEN-TC38) as a new testing standard proposal (CEN/TC 38/WG 24 N 146) (attached in IUCLID section 6.7) [6].

The curative efficacy against *Hylotrupes bajulus* with borehole treatment for the product LB Z-FOO 002 (Koratect Ib) has been shown at an application rate of 10 kg/m³.

With this study the existing common practice of deriving the efficacy for borehole treatment from results for superficial treatment has been confirmed. The tested product LB Z-FOO 002 (Koratect Ib) is based on aliphatic hydrocarbons as well as Koranol Holzbau Grund, so that the distribution of the products in wood is comparable which is the crucial property referring to the efficacy for borehole treatments. For the detailed composition of Z-FOO 002 (Koratect Ib) please refer to the Confidential Annex.

Preventive efficacy against termites

To demonstrate efficacy of preventive treatment against termites two efficacy studies were provided. The EN118 (combined with EN73) and EN118 (combined with EN84) studies demonstrated that the product is efficacious against termites (genus *Reticulitermes*) in superficial application at an application rate of 250 ml/m². The provided efficacy studies demonstrate preventive efficacy for use on wood in Use Classes 1, 2 and 3.

**Literature cited**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | Ito, T.; Funaki, Y.; Hirose, C. (1976) | : | Efficacy of Insecticides against Lyctus Powder-Post Beetle, Luctus brunneus (Steph.). Sumitomo Chemical Co. Ltd.,  (Research Department, Pesticides Division) |
| 2 | Berry, R.W. (1977) | : | The evaluation of Permethrin for Wood Preservation.  International Research Group on Wood preservation: IRG/WP/3107 |

#### Relevant information if the product is intended to be authorised for use with other biocidal product(s)

The product Koranol Holzbau Grund is not intended to be authorised for use with other biocidal product(s).

### Risk assessment for human health

#### Assessment of effects on Human Health

***Skin corrosion and irritation***

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| **Conclusion used in Risk Assessment – Skin corrosion and irritation** | |
| Value/conclusion | Not corrosive or irritating to skin. |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | No classification for skin corrosion/irritation required.  EUH066 is required based on SoC |

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| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.1 “Skin corrosion or skin irritation” |
|  | Section 8.1, Skin irritation/corrosion |
| Justification | Studies on potential skin corrosive or skin irritating properties of the product Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.1 “Skin corrosion or skin irritation” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  None of the components in the product are classified with respect to skin corrosion/irritation.  Therefore, according to the CLP principles, Koranol Holzbau Grund does not need to be classified with respect to skin corrosion/irritation.  However, Koranol Holzbau Grund contains the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” in a substantial amount which may cause skin dryness or cracking.  According to Annex II, chapter 1.2.4 of the Regulation (EC) No 1272/2008 (CLP), for substances and mixtures which may cause concern as a result of skin dryness, flaking or cracking but which do not meet the criteria for skin irritancy, additional labelling with EUH066 is required.  Thus, the label of Koranol Holzbau Grund shall bear the statement EUH066: “Repeated exposure may cause skin dryness or cracking”. |

***Eye irritation***

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| **Conclusion used in Risk Assessment – Eye irritation** | |
| Value/conclusion | Cause serious eye irritation |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | H319: Causes serious eye irritation |

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| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.2 “Eye irritation” |
| IUCLID data point | Section 8.2, Eye irritation |
| Justification | Studies on potential eye damaging or eye irritating properties of the product Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.2 “Eye irritation” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  IPBC has harmonized classification of Eye Dam. 1; H318. The concentration of IPBC in the product is 1.4%.  According to Table 3.3.3 of the CLP Regulation (EC) No 1272/2008, the generic concentration limits of ingredients of a mixture classified as eye Category 1 that triggers the classification of the mixture with eye Category 2 is ≥ 1% but < 3%.  As the concentration of 1.4% IPBC is > 1% but < 3% for eye Category 2, Koranol Holzbau Grund needs to be classified with respect to local effects on the eye with H319 “Causes serious eye irritation”. |

***Respiratory tract irritation***

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| **Conclusion used in the Risk Assessment – Respiratory tract irritation** | |
| Value/conclusion | Not irritating to the respiratory tract. |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP and DSD | No classification required. |

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| **Data waiving** | |
| Information requirement | Up to April 2016, there are no testing requirements for respiratory irritation under the BPR. |
| IUCLID data point | Section 8.7.1, other endpoints - Respiratory tract irritation |
| Justification | Studies on potential respiratory tract irritation properties of the product Koranol Holzbau Grund are not required.  Up to April 2016, there are no testing requirements for respiratory irritation under the BPR (see point “Respiratory irritation” under chapter II, point 8.2 “Eye irritation” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014).  However, Annex I, chapter 3.8.3.4.5 of Regulation (EC) No 1272/2008 (CLP) allows for extrapolation of the toxicity of a mixture that contains substances classified with respect to specific target organ toxicity after single exposure category 3 (STOT SE, Cat. 3; H335) based on valid data on all components in the mixtures classified with STOT SE, Cat. 3; H335.  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  None of the components in the product are classified with respect to specific target organ toxicity after single exposure category 3.  Consequently, according to the CLP principles, Koranol Holzbau Grund does not need to be classified with respect to respiratory tract irritation. |

***Skin sensitization***

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| **Conclusion used in Risk Assessment – Skin sensitisation** | |
| Value/conclusion | Sensitising to skin. |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | H317: May cause an allergic skin reaction |

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| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.3 “Skin sensitization”. |
| IUCLID data point | Section 8.3, Skin sensitisation |
| Justification | Studies on potential skin sensitization properties of the product Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.3 “Skin sensitization” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  Propiconazole, IPBC and permethrin have a harmonized classification of Skin Sens. 1; H317. The concentrations of propiconazole, IPBC and permethrin in Koranol Holzbau Grund are 0.45%, 1.4% and 0.2%, respectively.  According to Table 3.4.5 of the CLP Regulation (EC) No 1272/2008, the generic concentration limit of a component of a mixture classified as skin sensitizer that triggers the classification of the mixture is ≥ 1%.  As the concentration of 1.4% of IPBC in the product is above the concentration limit of ≥ 1% for skin sensitization, Koranol Holzbau Grund needs to be classified with respect to skin sensitization. |

***Respiratory sensitization (ADS)***

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| **Conclusion** **used in Risk Assessment – Respiratory sensitisation** | |
| Value/conclusion | Not sensitizing to respiratory tract. |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | No classification required. |

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| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.4 “Respiratory sensitization” (ADS) |
| IUCLID data point | Section 8.4, Respiratory sensitisation |
| Justification | Studies on potential respiratory sensitization properties of Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.4 “Respiratory sensitization” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  None of the components in the product are classified with respect to respiratory sensitization.  Therefore, according to the CLP principles, Koranol Holzbau Grund does not need to be classified with respect to respiratory sensitization. |

***Acute toxicity***

*Acute toxicity by oral route*

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| **Value used in the Risk Assessment – Acute oral toxicity** | |
| Value | Not acutely toxic via the oral route. |
| Justification for the selected value | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | No classification required. |

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| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.5.1 “Acute toxicity by oral route” |
| IUCLID data point | Section 8.5.1, Acute toxicity: oral |
| Justification | Studies on the potential acute oral toxicity of Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.5 “Acute toxicity” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  According to chapter 3.1.3.6 “Classification of mixtures based on ingredients of the mixture (Additivity formula)” of the CLP Regulation, the ATE of the mixture (ATEmix) is determined by calculation from the ATE values for all relevant ingredients according to the following formula and using the LD50/LC50-values as provided for in section 11 (“Toxicological Information”) of the SDS of the respective components for Oral, Dermal or Inhalation Toxicity:  where:  Ci = concentration of ingredient i (% w/w or % v/v)  i = the individual ingredient from 1 to n  n = the number of ingredients  ATEi = Acute Toxicity Estimate of ingredient i.  Propiconazole, IPBC and permethrin are classified with Acute Tox. 4; H302 and the LD50 values are 1500 mg/kg (CAR), 300-500 mg/kg bw and 480 mg/kg bw, respectively. The concentrations of propiconazole, IPBC and permethrin in Koranol Holzbau Grund are 0.45%, 1.4% and 0.2%, respectively.  According to CLP Regulation, section 3.1.3.3., page 124, "(d) when only range data (or acute toxicity hazard category information) are available for components in a mixture, they may be converted to point estimates in accordance with Table 3.1.2 when calculating the classification of the new mixture using the formulas in sections 3.1.3.6.1 and 3.1.3.6.2.3". In table 3.1.2, the converted acute toxicity point estimated is 500 for the experimentally obtained acute toxicity range values of 300 < LD50 ≤ 2000 mg/kg bw.  The potential acute oral toxicity of the product is calculated as follows:  ATEmix = 100/[(0.45/1500) + (1.4/500) + (0.2/480)] = 100/(0.0003 + 0.0028 + 0.00042) = 28436 mg/kg bw.  According to Tab.3.1.2 of the CLP Regulation (EC) No 1272/2008, the calculated ATE of the mixture for acute oral toxicity is > 2000 mg/kg bw. Thus, Koranol Holzbau Grund does not need to be classified with respect to acute oral toxicity. |

*Acute toxicity by inhalation*

|  |  |
| --- | --- |
| **Value used in the Risk Assessment – Acute inhalation toxicity** | |
| Value | Not acutely toxic via the inhalation route. |
| Justification for the selected value | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | No classification required. |

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.5.2 “Acute toxicity by inhalation” |
| IUCLID data point | Section 8.5.2, Acute toxicity: inhalation |
| Justification | Studies on the potential acute inhalation toxicity of Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.5 “Acute toxicity” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  According to chapter 3.1.3.6 “Classification of mixtures based on ingredients of the mixture (Additivity formula)” of the CLP Regulation, the ATE of the mixture (ATEmix) is determined by calculation from the ATE values for all relevant ingredients according to the following formula and using the LD50/LC50-values as provided for in section 11 (“Toxicological Information”) of the SDS of the respective components for Oral, Dermal or Inhalation Toxicity:  where:  Ci = concentration of ingredient i (% w/w or % v/v)  i = the individual ingredient from 1 to n  n = the number of ingredients  ATEi = Acute Toxicity Estimate of ingredient i.  IPBC is classified with Acute Tox. 3; H331, while permethrin is classified with Acute Tox. 4; H332. The LC50 values for IPBC and permethrin are for dust/mist 0.67 mg/L and 4.638 mg/L, respectively, according to the CARs. The concentrations of IPBC and permethrin in Koranol Holzbau Grund are 1.4% and 0.2%, respectively.  The potential acute inhalation toxicity of the product is calculated as follows:  ATEmix = 100/[(1.4/0.67) + (0.2/4.638)] = 100/(2.089 + 0.043) = 46.9 mg/L  According to Tab.3.1.2 of the CLP Regulation (EC) No 1272/2008, the calculated ATE of the mixture for acute inhalation toxicity is > 5 mg/L for dust/mist mg/kg bw. Thus, Koranol Holzbau Grund does not need to be classified with respect to acute inhalation toxicity. |

*Acute toxicity by dermal route*

|  |  |
| --- | --- |
| **Value used in the Risk Assessment – Acute dermal toxicity** | |
| Value | Not acutely toxic via the dermal route. |
| Justification for the selected value | Based on intrinsic properties of individual component of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | No classification required. |

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.5.3 “Acute toxicity by dermal route” |
| IUCLID data point | Section 8.5.3, Acute toxicity: dermal |
| Justification | Studies on the potential acute dermal toxicity of Koranol Holzbau Grund are not required.  According to Annex III, Title 1 of the BPR (Regulation (EU) 528/2012) and chapter III, section 8.5 “Acute toxicity” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), “testing on the product/mixture does not need to be conducted if there are valid data available on each of the components in the mixture sufficient to allow classification of the mixture according to the rules laid down in Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP), and synergistic effects between any of the components are not expected.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. There is no indication of synergistic effects between any of the components. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  None of the components in the product are classified as acutely toxic via the dermal route.  Therefore, according to the CLP principles, Koranol Holzbau Grund does not need to be classified with respect to acute dermal toxicity. |

*Acute toxicity of product combinations*

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.5.4 “Acute toxicity of product combinations” |
| IUCLID data point | Section 8.5.4, Acute toxicity: product combinations |
| Justification | Since Koranol Holzbau Grund is not intended to be authorized for use with other products, an assessment of the potential acute toxicity of product combinations is not required. |

***Information on dermal absorption***

|  |  |  |  |
| --- | --- | --- | --- |
| **Value(s) used in the Risk Assessment – Dermal absorption** | | | |
| Substance | Propiconazole | IPBC | Permethrin |
| Value(s)\* | 7.6% | 30% (for 1.4% IPBC)  1.6% (for dried solutions) | 10% |
| Justification for the selected value(s) | Read-across to similar tested mixtures. | Read-across to similar tested mixtures. | Read-across to similar tested mixtures. |

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Annex III of BPR, point 8.6 “Dermal absorption” |
| IUCLID data point | Section 8.6, Dermal absorption |
| Justification | No studies on the dermal absorption of Koranol Holzbau Grund were performed.  According to chapter III, section 8.6 “Information on dermal absorption” of the Guidance on the Biocidal Products Regulation, Part A, Volume III, Human Health (version 1.1, Nov. 2014), dermal absorption can be estimated by extrapolation of experimental data obtained with a similar formulation.  For Koranol Holzbau Grund, dermal absorption can be assessed by read-across to dermal absorption studies evaluated in the context of the active substances dossiers on IPBC (see respective CAR Annex I Doc IIIB 6.4., for PT8).  For propiconazole and permethrin, dermal absorption values were derived from in vitro tests performed with comparable solvent-based formulations. For the composition and justification for read-across please refer to the Confidential Annex of this PAR.  The dermal absorption of propiconazole was examined in a GLP in vitro human study according to OECD 428 (Blackstock, 2016) for a comparable formulation. The Propiconazole content was determined to be 0.6 % (w/w) in the test material (radioactive determination). Human skin samples were exposed to the product for 6 h and monitored for 24 h. A dermal absorption value of 7.6 % was determined for Propiconazole in this setting. Please note that the biocidal product only contains 0.45 % (w/w) propiconazole. Lower concentrations generally result in a higher dermal absorption value and that therefore a pro-rata correction would be necessary. However, based on the available data with water based solvents it becomes clear that the dermal absorption of propiconazole is not dependent on the concentration tested (see confidential annex for details). Moreover, for the solvent based products based on two available studies it was demonstrated that the dermal absorption of the formulation containing the lowest propiconazole concentration even resulted in a lower dermal absorption value than the concentration of 0.6% tested. It was therefore concluded that the dermal absorption of propiconazole is not significantly dependent on the concentration and a pro-rata correction is therefore not considered relevant in this case. Moreover, when applying a pro-rate correction, the value derived (10%) does not impact the risk assessment. Therefore it was not considered necessary to apply a pro-rata correction.  The dermal absorption was examined in a GLP in vitro human study according to OECD 428 (Webbley, 2015) for a comparable formulation. The Permethrin content was determined to be 0.07 % (w/w) in the test material (radioactive determination). 8 test replicates from 4 donors were exposed to the product for 6 h and monitored for 24 h. A dermal absorption value of 10 % was determined for Permethrin in this setting. |

***Available toxicological data relating to***

***Other endpoints***

***Aspiration Hazard***

|  |  |
| --- | --- |
| **Conclusion** **used in Risk Assessment – Respiratory sensitisation** | |
| Value/conclusion | May pose an aspiration toxicity hazard |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | H304: May be fatal if swallowed and enters airways |

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Up to April 2016, there are no testing requirements for aspiration toxicity hazard under the BPR. |
| IUCLID data point | Section 8.7.1, other endpoints – Aspiration Hazard |
| Justification | Studies on potential aspiration toxicity hazard of the product Koranol Holzbau Grund are not required.  According to Table 3.10.1 “Hazard category for aspiration toxicity” of the CLP Regulation (EC) No 1272/2008, “a substance is classified in Aspiration toxicity Category 1:  (a) based on reliable and good quality human evidence or  (b) if it is a hydrocarbon and has a kinematic viscosity of 20,5 mm²/s or less, measured at 40°C.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  The SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” is a hydrocarbon and has a kinematic viscosity as provided in the SDS of 1.57 mm²/s at 40°C. The concentration of the SoC in Koranol Holzbau Grund is above the concentration limit of ≥ 10% for classification with Aspiration toxicity Category 1.  Thus, Koranol Holzbau Grund needs to be classified with respect to aspiration toxicity hazard. |

***Specific target organ toxicity – repeated exposure***

|  |  |
| --- | --- |
| **Conclusion** **used in Risk Assessment – Respiratory sensitisation** | |
| Value/conclusion | May cause damage to larynx through repeated exposure by inhalation |
| Justification for the value/conclusion | Based on intrinsic properties of individual components of the biocidal product Koranol Holzbau Grund. |
| Classification of the product according to CLP | H373: May cause damage to larynx through prolonged or repeated exposure by inhalation |

|  |  |
| --- | --- |
| **Data waiving** | |
| Information requirement | Long-term repeated dose toxicity studies are required for active substances but not for biocidal products under the BPR. |
| IUCLID data point | Section 8.7.1, other endpoints – Specific target organ toxicity – repeated exposure |
| Justification | Studies on potential specific target organ toxicity of the product Koranol Holzbau Grund are not required.  Long-term repeated dose toxicity studies are required for active substances but not for biocidal products under the BPR.  However, according to chapter 3.9.3 “Classification cratiria for mixtures” of the CLP Regulation (EC) No 1272/2008, “mixtures are classified using the same criteria as for substances, or alternatively as described below. As with substances, mixtures shall be classified for specific target organ toxicity following repeated exposure.”  For Koranol Holzbau Grund, the exact composition is known. For each of the individual components in the product, valid data on the intrinsic properties are available through state-of-the-art safety data sheets. Consequently, classification of the mixture can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not required.  IPBC has harmonized classification of STOT RE 1; H372 (larynx). The concentration of IPBC in Koranol Holzbau Grund is 1.4%.  According to Table 3.9.4 of the CLP Regulation (EC) No 1272/2008, the generic concentration limit of ingredients of a mixture classified as a specific target organ toxicant Category 1 that trigger classification of the mixture as a specific target organ toxicant Category 2 is ≥ 1.0% but < 10%.  As the concentration of 1.4% of IPBC in the product is above the concentration limit of ≥ 1%, Koranol Holzbau Grund needs to be classified with H373: May cause damage to larynx through prolonged or repeated exposure by inhalation. |

***Other endpoints***

According to the RAC Opinion on propiconazole, propiconazole is to be classified as reproductive toxicant category 1B H360D (May damage the unborn child). As specified in the table 3.7.2 of the CLP Regulation (EC) 1272/2008, the concentration of propiconazole in the product (i.e. 0.45%) triggers the classification of the product with reproductive toxicant category 1B H360D (May damage the unborn child).

***Available toxicological data relating to non active substance(s) (i.e. substance(s) of concern)***

According to the note for discussion on substances of concern (SoC), CA-Nov14-Doc.5.11, Koranol Holzbau Grund contains the substance of concern (SoC) “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” triggers the classification of the product with Asp. Tox. 1 (H304).

According to the Guidance on the Biocidal Products Regulation, Vol III, Part B (2015), the SoC contained in the product ends up in Band A. Associated evaluation and risk management requirements according to the SoC banding approach for Band A are limited to the “Application of S-phrases/P-statements normally associated with concerned R-phrases/H statements” and have been accounted for and addressed in the respective parts of this PAR.

***Available toxicological data relating to a mixture that a substance(s) of concern is a component of***

There is no indication that Koranol Holzbau Grund contains mixtures that a substance(s) of concern is a component of. Consequently, additional toxicological data on non-active substances are not required.

***Other***

**Food and feedingstuffs studies**

Feeding and metabolism studies in livestock animals are not required as the product Koranol Holzbau Grund is not intended for applications where contact with feedingstuffs may arise. Consequently, the transfer of potential residues of the biocidal product to food of animal origin *via* feedingstuffs is not relevant.

**Effects of industrial processing and/or domestic preparation on the nature and magnitude of residues of the biocidal product**

Not relevant, since residues in food due to the use of Koranol Holzbau Grund as wood preservative do not occur.

**Other test(s) related to the exposure to humans**

Other tests related to the exposure of humans are not required for Koranol Holzbau Grund. The exposure of humans in all relevant exposure scenarios has been assessed with accepted exposure models (according to “Biocides Human Health Exposure Methodology”) and considering most recent recommendations of HEEG. The results of the human exposure and risk assessments for the intended use scenarios are provided in the respective chapters of the PAR.

As Koranol Holzbau Grund is not intended to be applied directly or around livestock, residue studies are not needed.

***Assessment for endocrine disrupting properties***

According to the ED (endocrine disruptor) criteria with respect to humans established in the Comission Delgated Regulation (EU) 2017/2100, a substance shall be considered as having endocrine disrupting properties if it meets all of the following criteria:

a) it shows an adverse effect in [an intact organism or its progeny]/[non-target organisms], which is a change in the morphology, physiology, growth, development, reproduction or life span of an organism, system or (sub)population that results in an impairment of functional capacity, an impairment of the capacity to compensate for additional stress or an increase in susceptibility to other influences;

b) it has an endocrine mode of action, i.e. it alters the function(s) of the endocrine system;

c) the adverse effect is a consequence of the endocrine mode of action.

To examine if any of the co-formulants contained in the product may possess ED properties, a screening was performed by examining whether the co-formulants are

* Classified as CMR or PBT;
  + Identified as ED in the DG Santé’s Impact Assessment study on Screening of available evidence on chemical substances for the identification of endocrine disruptors;
  + Identified as ED in the EU list of potential endocrine disruptors; or
  + Listed in CoRAP linked to ED concerns.

None of the co-formulants triggered an alert for ED property.

Subsequently, it was examined if there are any concerns for adverse effect to meet the critaria a) as described above using ECHA REACH database. This examination did not result in alerts, and therefore it was concluded that no further assessment was required for co-formulants of Koranol Holzbau Grund.

According to the CARs, tebuconazole and propiconazole may have the potential to cause endocrine disruption based on suspected properties for the azole group. Propiconazole is listed in the documenf of EU Comission on endocrine disrupting chemicals (COM(1999)706). The listing was done due to lack of information. However, the analysis of sex ratio of FO generation in a fish life-cycle test from the submitted dossier showed that propiconazole did not have any effect on the sex ratio of fish. The ED assessment of these two active substances should be coordinated at the EU level and it is not further addressd for the current application. If it is concluded that propiconazole or tebuconazole is endocrine disruptor at the EU level then the authorisation of this product may be reviewed.

For IPBC there is no description about ED in the CAR. The ED assessment of this active substances should be done at the EU level during renewal of the active substance dossier and it is therefore not further addressd for the current application.

Altogether, there is no indication to suggest ED potential of Koranol Holzbau Grund at this moment of authorisation.

#### Exposure assessment

**Identification of main paths of human exposure towards active substance(s) and substances of concern from its use in biocidal product**

| **Summary table: relevant paths of human exposure** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Exposure path** | **Primary (direct) exposure** | | | **Secondary (indirect) exposure** | | | |
| **Industrial use** | **Professional use** | **Non-professional use** | **Industrial use** | **Professional use** | **General public** | **Via food** |
| Inhalation | Yes | Yes | No | No | Yes | Yes | n.a. |
| Dermal | Yes | Yes | No | No | Yes | Yes | n.a. |
| Oral | No | No | No | No | No | Yes | n.a. |

n.a.: not applicable

**Explanatory note:**

The exposure assessments are based on model calculations using models and default values from Biocides Human Health Exposure Methodology (October 2015) and HEEG opinions. Justifications for deviations from Biocides Human Health Exposure Methodology are provided in the respective description of the scenarios.

As a first step, primary exposure assessments are performed for all individual scenarios (work tasks) which are relevant for wood preservatives – PT8 (see table “list of scenarios” below) considering the concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin (for more details, please refer to “general considerations” provided on the next page).

In a second step, the exposure calculated for the individual work tasks are combined (added up) for the following intended uses:

* **Use # 1: Industrial users - Automated dipping - indoor**
* **Use # 2: Industrial and professional users - Manual dipping - indoor**
* **Use # 3: Industrial users - Flow coating (deluging) - indoor**
* **Use # 4: Professional users - Brushing/roller - indoor**
* **Use # 5: Professional users - Borehole filling without pressure – indoor, outdoor**
* **Use # 6: Professional users - Borehole pressure injection – indoor, outdoor**
* **Use # 7: Professional users - Brushing/roller – indoor, outdoor**

Additionally, qualitative assessments are performed to adress sensitizing and eye irritating local effects of the product according to the “Guidance on the BPR: Volume III, Part B, Risk Assessment (Version 2.0 of October 2015)”.

Furthermore, secondary exposure of professionals and the general public is assessed considering the highest effective retention of 350 mL/m² in wood (please see table on the next page).

Secondary (indirect) exposure is defined as the exposure via the environment, which the exposed person may not be aware of (for example handling treated material, consumption of residues in food or drinking water), and which may even be long-term (TNsG on Annex I inclusion p. 20 (EC, 2002b)).

Secondary exposure scenarios involve skin contact and possible exposure by inhalation. Treated wood is not placed on the market until the product is dry. In practice, persons handling large amounts of treated timber (e.g. professional users of treated timber) would be expected to wear gloves to protect their hands from splinters or abrasions.

Secondary exposure of the general public includes dermal contact with contaminated surfaces or handling contaminated objects. Skin contact and oral contact with treated wood objects or hand-to-mouth contact is related to infants, toddlers and children playing on weathered structure. Children and infants are assumed to be a group at risk due to their low body weight and some secondary exposure scenarios are related to them. The exposure of toddler is considered to be covered by those of infants due to the lower body weight of infants.

Secondary exposure can occur soon after the application of the product or as a single event (acute phase), or thereafter during the long term and may be continuous (chronic phase).

**General considerations:**

The biocidal product Koranol Holzbau Grund is a ready-to-use (RTU) solvent-based formulation containing propiconazole, IPBC and permethrin at concentrations of 0.45%, 1.4% and 0.2%, respectively. Koranol Holzbau Grund is used by industrials and professionals (see Table below).

|  |  |  |
| --- | --- | --- |
| **Use #** | **Concentrations**  **(a.s.)** | **Effective retention in wood** |
| 1: Industrial users - Automated dipping - indoor | 0.45% propiconazole  1.4% IPBC  0.2% permethrin | 100 ml/m²  250 mL/m²  350 mL/m²  **Note: The highest effective retention of 350 mL/m² in wood is used for the calculation of the secondary exposure scenarios.** |
| 2: Industrial and professional users - Manual dipping - indoor |
| 3: Industrial users - Flow coating (deluging) - indoor |
| 4: Professional users - Brushing/roller - indoor |
| 5: Professional users - Borehole filling without pressure – indoor, outdoor |
| 6: Professional users - Borehole pressure injection – indoor, outdoor |
| 7: Professional users - Brushing/roller – indoor, outdoor |

The protection factors for personal protective equipment (PPE) used for the exposure assessments are defaults from the HEEG opinion 2010 “Default protection factors for protective clothing and gloves”.

These general considerations apply to all scenarios (work tasks) provided in the following “List of scenarios”. Consequently, these considerations are not repeated in the descriptions of the individual scenarios.

***List of scenarios***

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary table: scenarios** | | | |
| **Scenario number** | **Scenario**  (e.g. mixing/ loading) | **Primary or secondary exposure**  **Description of scenario** | **Exposed group**  (e.g. professionals, non-professionals, bystanders) |
| **1. Primary exposure by industrials** | | | |
| 1.1. | Mixing/  loading of RTU | The solvent-based RTU product is delivered in IBC or by tanker. Dilution is not required for the RTU product. The transfer of the RTU product is done automated by connecting lines. | Industrials |
| 1.2.1. | Application -Automated dipping | For automated dipping, an operator using a fork-lift truck lowers the wood into the dipping tank or transfers the wood to a bathing tray. Automated dipping is a fully automated process. After the treatment, the wood is lifted out by the fork-lift truck.  The wood is then transferred by the fork-lift truck to a storage area where it is placed to dry.  Due to the fully automation exposure from 1 cycle per day is considered. The operator exposure arises from handling the treated wood. | Industrials |
| 1.2.2. | Application -Manual dipping | During manual dipping, the operator lifts and places – by hand – the wooden article into the dipping tank. The operator then pushes, using a post, the wooden article under the wood preservative in the dipping tank and/or uses a broom to brush the wood preservative onto the wooden article (the article is still in the dipping tank as the preservative is brushed on the wood). The operator then lifts manually the wooden article from the dipping tank and stacks the article to dry. Manual dipping is undertaken during a very short time during the day. | Industrials and professionals |
| 1.2.3. | Application -Flow coating (deluging) | During flow coating, timber is passed through an enclosed tunnel in which the preservative is applied. The device is open at both sides, i.e. front and back side. Timber enters through the front side and the treated timber comes out dripping wet through the back side. After the flooding process treated timber is automatically transferred through a drying channel, where the wooden articles are dried with a warm air stream, before handled manually and before the top-coat warm air stream is applied. The wood preservative is applied in one cycle (60 min). Operator exposure should be low during this process and be predominantly due to residues from handling freshly treated timber. | Industrials |
| 1.3. | Post-application -System maintenance | The post-application phase includes disposal.  For maintenance of treatment vessels and dipping tanks, test and clean greasing door seals, collecting fallen timber as well as clearing sludge is considered. For maintenance of flow coating systems, the cleaning of spray nozzles is considered. | Industrials |
| **2. Primary exposure by professionals** | | | |
| 2.1. | Mixing and Loading of RTU | The solvent-based RTU product is delivered in IBC/drum (200 – 1000 L) or in can/bucket/jerry can (up to 20 L). Dilution is not required for the RTU product. For IBC/drum, the transfer of the RTU product is done automated by connecting lines.  For volumes up to 20 L, the product may be transferred to smaller containers before application. | Professionals |
| 2.2.1. | Application – Borehole filling without pressure | The application solution is funnelled into boreholes. | professionals |
| 2.2.2. | Application – Borehole pressure injection | The RTU product is applied to the drills using a wood injector (pressure impregnation). | professionals |
| 2.2.3. | Application – Brushing and rolling | The activities of the professional users are stirring the RTU product and applying it to wood using a brush indoors or outdoors. | Professionals |
| 2.3. | Post-application – Washing out of a brush | After the application, the brush is washed out. | Professionals |
| **4. Secondary exposure by professionals and general public** | | | |
| 4.1.1. | Sawing and sanding treated wood | Cutting and sanding treated wood by professional worker (chronic exposure). | Professionals |
| 4.1.2. | Sawing and sanding treated wood | Cutting and sanding treated wood by general public (acute exposure). | General public (adult) |
| 4.2. | Chewing wood off-cut | Infant picks up and chews wood off-cut, which has been treated with wood preservative (acute exposure). | General public (infant) |
| 4.3. | Playing on playground structure outdoors and mouthing | Infant playing on and mouthing weathered structure (chronic exposure). | General public (infant) |
| 4.4. | Inhalation of volatilized residues | Chronic exposure to wood preservatives may arise via residues volatilised from treated wood indoors. | General public (infant and child, adult) |

Potential contact to wet surfaces was not assessed. For adults it can be assumed that they generally avoid contact to wet treated surfaces. However, for younger children and for pets this cannot be assumed, however exposure is covered by the included RMM: “Keep children and pets away from treated structures until dried”.

***Industrial exposure***

*Scenario [1.1. Mixing/loading of RTU]*

| **Description of Scenario [1.1. Mixing/loading of RTU]** |
| --- |
| The solvent-based RTU product is delivered in IBC or by tanker. Dilution is not required for the RTU product. The transfer of the RTU product is done automated by connecting lines.  According to HEEG 2013, "*where the wood preservative fluid is delivered by tanker and is transferred from the tanker into the dip tank using connecting hosing then, it could be assumed, providing the operator wears suitable PPE, exposure of the operator’s skin is minimal and does not need to be quantified.*"  The inhalation exposure is considered to be less than during the individual applications phases and, thus, to be covered by the application scenarios. |

***Calculations for Scenario [1.1. Mixing/loading of RTU]***

Not required since the exposure can be regarded to be negligible.

***Further information and considerations on scenario [1.1. Mixing/loading of RTU]***

Qualitative local risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

*Scenario [1.2.1. Application – Fully Automated dipping]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [1.2.1. Application -Fully Automated dipping]** | | |
| For fully automated dipping, an operator using a fork-lift truck lowers the wood into the dipping tank or transfers the wood to a bathing tray. Automated dipping is an automated process. After the treatment, the wood is lifted out by the fork-lift truck.  The wood is then transferred by the fork-lift truck to a storage area where it is placed to dry. The operator exposure arises from handling the treated wood.  Four cycles (60 min per cycle) per day are considered according to Biocides Human Health Exposure Methodology (October 2015) – PT8 “Professional automated dipping/immersion of wood articles”.  Use in fully automated dipping processes where all steps in the treatment and drying process are mechanised and no manual handling takes place, including when the treated articles are transported through the dip tank to the draining/drying and storage (if not already surface dry before moving to storage). Where appropriate, the wooden articles to be treated must be fully secured (e.g. via tension belts or clamping devices) prior to treatment and during the dipping process, and must not be manually handled until the treated articles are surface dry. The untreated wood may only be lowered by a separate lifting unit into the dipping tank.  According to the HEEG opinion 18 - For exposure assessment for professional operators undertaking industrial treatment of wood by fully automated dipping where all steps in the treatment and drying process are mechanised and no manual handling takes place the dermal exposure is assumed to decrease by a factor of 4 i.e. 1 cycle per day.  The model used is Handling model 1 solvent-based (TNsG 2002 User Guidance – Version 1 and HEEG opinions 8 and 18 - 2009/2013) for dermal and inhalation exposure estimation. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Exposure duration | 1 cycle (fully automated) |
| Indicative values for solvent-based products from Handling model 1 | Hands: 26000 mg/cycle (without gloves)  Body: 158 mg/cycle |
| Tier 2 | Gloves | Hands: 260 mg/cycle (inside gloves) |
| coverall | 90% protection |

***Calculations for Scenario [1.2.1. Application -Automated dipping]***

In the following, the results of the calculations are provided for scenario 1.2.1. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake**  **(mg/kg bw)** | **Estimated oral uptake**  **(mg/kg bw)** | **Estimated total uptake**  **(mg/kg bw)** |
| Scenario [1.2.1.] | Tier 1 /  none | negligible | 1.49E-01 | - | 1.49E-01 |
| Tier 2/  Gloves  coverall | negligible | 1.57E-03 | - | 1.57E-03 |

In the following, the results of the calculations are provided for scenario 1.2.1. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.1.] | Tier 1 /  none | negligible | 1.83 | - | 1.83 |
| Tier 2/  Gloves  coverall | negligible | 1.93E-02 | - | 1.93E-02 |

In the following, the results of the calculations are provided for scenario 1.2.1. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.1.] | Tier 1 /  none | negligible | 8.72E-02 | - | 8.72E-02 |
| Tier 2/  Gloves  coverall | negligible | 9.19E-04 | - | 9.19E-04 |

***Further information and considerations on scenario [1.2.1. Application -Automated dipping]***

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 1.

*Scenario [1.2.2. Application -Manual dipping]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [1.2.2. Application -Manual dipping]** | | |
| During manual dipping, the operator lifts and places – by hand – the wooden article into the dipping tank. The operator then pushes, using a post, the wooden article under the wood preservative in the dipping tank and/or uses a broom to brush the wood preservative onto the wooden article (the article is still in the dipping tank as the preservative is brushed on the wood). The operator then lifts manually the wooden article from the dipping tank and stacks the article to dry. Manual dipping is undertaken during a very short time during the day.  A duration time of 30 min is considered according to Biocides Human Health Exposure Methodology (October 2015) – PT8 “Professional manual dipping of wood articles”.  The model used is Dipping model 1 (TNsG 2002 User Guidance – Version 1 and HEEG opinions 8 - 2009) for dermal and inhalation exposure estimation. This model includes the mixing/loading. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Exposure duration | 30 min |
| Indicative values for Dipping model 1 | Hands: 2570 mg/min  Body: 178 mg/min  Inhalation: 1 mg/m³ |
| Tier 2 | Gloves | Hands: 25.7 mg/min (inside gloves) |
| coverall | 90% protection |

***Calculations for Scenario [1.2.2. Application -Manual dipping]***

In the following, the results of the calculations are provided for scenario 1.2.2. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.2.] | Tier 1/  none | 4.69E-05 | 4.70E-01 | - | 4.70E-01 |
| Tier 2/  Gloves  coverall | 4.69E-05 | 7.43E-03 | - | 7.49E-03 |

In the following, the results of the calculations are provided for scenario 1.2.2. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.2.] | Tier 1/  none | 1.46E-04 | 5.77 | - | 5.77 |
| Tier 2/  Gloves  coverall | 1.46E-04 | 9.14E-02 | - | 9.15E-02 |

In the following, the results of the calculations are provided for scenario 1.2.2. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.2.] | Tier 1/  none | 2.08E-05 | 2.75E-01 | - | 2.75E-01 |
| Tier 2/  Gloves  coverall | 2.08E-05 | 4.35E-03 | - | 4.37E-03 |

***Further information and considerations on scenario [1.2.2. Application -Manual dipping by industrials and professionals]***

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 2.

*Scenario [**1.2.3. Application - Flow coating (deluging)]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [1.2.3. Application - Flow coating (deluging)]** | | |
| During flow coating, timber is passed through an enclosed tunnel in which the preservative is applied. The device is open at both sides, i.e. front and back side. Timber enters through the front side and the treated timber comes out dripping wet through the back side. After the flooding process treated timber is automatically transferred through a drying channel, where the wooden articles are dried with a warm air stream, before handled manually and before the top-coat warm air stream is applied. The wood preservative is applied in one cycle (60 min). Operator exposure should be low during this process and be predominantly due to residues from handling freshly treated wood.  The exposure is estimated using Dipping model 1 recommended in Biocides Human Health Exposure Methodology (October 2015) – PT8 “Professional deluging”. This model includes the mixing/loading phase. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Exposure duration | 60 min |
| Indicative values for Dipping model 1 | Hands: 2570 mg/min (without gloves)  Body: 178 mg/min  Inhalation: 1 mg/m³ |
| Tier 2 | Gloves | Hands: 25.7 mg/min (inside gloves) |
| Impermeable coverall | 95% protection |

*\* eCa note: initially, calculations were made using an impermeable coverall for deluging treatment (scenario 1.2.3) since the combined exposure to all three active substances did not result in an acceptable exposure as the AEL was exceeded when using gloves and a coated coverall. However, when using the adjusted the liver-specific AELlong-term of 0.35 mg/kg bw/d for IPBC for Tier 3 combined risk assessment, only a coated coverall in addition to gloves are warranted for deludge treatment. In addition,* considering the organizational RMM "Timber enters through the front side and the treated timber comes out dripping wet through the back side. After the flooding process treated timber is automatically transferred through a drying channel, where the wooden articles are dried with a warm air stream, before handled manually and before the top-coat warm air stream is applied.” restricts the deluge system this will further reduce exposure significantly. However, this effect was not taken into account in the calculation made as a worst case approach.

*See for details section 2.2.6.3. The calculation sheets can be found in 3.2.1 Human Health Risk Assessment Appendix 1.*

***Calculations for Scenario [1.2.3. Application - Flow coating (deluging)]***

In the following, the results of the calculations are provided for scenario 1.2.3. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.3.] | Tier 1/  none | 9.38E-05 | 9.40E-01 | - | 9.40E-01 |
| Tier 2 /  Gloves  impermeable coverall | 9.38E-05 | 9.40E-03 | - | 9.49E-03 |

In the following, the results of the calculations are provided for scenario 1.2.3. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.3.] | Tier 1/  none | 2.92E-04 | 1.15E+01 | - | 1.15E+01 |
| Tier 2 /  Gloves  impermeable coverall | 2.92E-04 | 1.15E-01 | - | 1.16E-01 |

In the following, the results of the calculations are provided for scenario 1.2.3. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.2.3.] | Tier 1/  none | 4.17E-05 | 5.50E-01 | - | 5.50E-01 |
| Tier 2 /  Gloves  impermeable coverall | 4.17E-05 | 5.50E-03 | - | 5.54E-03 |

***Further information and considerations on scenario [1.2.3. Application -Flow coating (deluging)]***

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 3.

*Scenario [1.3. Post-application -System maintenance]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [1.3. Post-application -System maintenance]** | | |
| The post-application phase includes disposal.  For maintenance of treatment vessels and dipping tanks, test and clean greasing door seals, collecting fallen timber as well as clearing sludge is considered. For maintenance of flow coating systems, the cleaning of spray nozzles is considered.  The number of 1 cycle is used for exposure assessment.  The model used is Handling model 1 solvent-based (TNsG 2002 User Guidance – Version 1 and HEEG opinions 8 and 18 - 2009/2013) for dermal and inhalation exposure estimation. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Exposure duration | 1 cycle (dermal exposure)  60 min (inhalation exposure) |
| Indicative values for solvent-based products from Handling model 1 | Hands: 26000 mg/cycle (without gloves)  Body: 158 mg/cycle  Inhalation: 0.6 mg/m³ |
| Tier 2 | Gloves | Hands: 260 mg/cycle (inside gloves)  Body: 158 mg/cycle  Inhalation: 0.6 mg/m³ |
| Coverall | 90% protection |

***Calculations for Scenario [1.3. Post-application -System maintenance]***

In the following, the results of the calculations are provided for scenario 1.3. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.3.] | Tier 1/  none | 5.63E-05 | 1.49E-01 | - | 1.49E-01 |
| Tier 2/  Gloves  coverall | 5.63E-05 | 1.57E-03 | - | 1.63E-03 |

In the following, the results of the calculations are provided for scenario 1.3. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.3.] | Tier 1/  none | 1.75E-04 | 1.83E+00 | - | 1.83E+00 |
| Tier 2/  Gloves  coverall | 1.75E-04 | 1.93E-02 | - | 1.95E-02 |

In the following, the results of the calculations are provided for scenario 1.3. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from industrial uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [1.3.] | Tier 1/  none | 2.50E-05 | 8.72E-02 | - | 8.72E-02 |
| Tier 2/  Gloves  coverall | 2.50E-05 | 9.20E-04 | - | 9.44E-04 |

***Further information and considerations on scenario [1.3. Post-application -System maintenance]***

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 4.

*Combined scenarios*

Explanatory note:

The exposure calculated for the individual work tasks are combined (added up) for the following intended uses:

* **Use # 1: Industrial users - Automated dipping - indoor**
* **Use # 2: Industrial and professional users - Manual dipping - indoor**
* **Use # 3: Industrial users - Flow coating (deluging) - indoor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Summary table: combined systemic exposure from industrial uses** | | | | | |
| **Scenarios combined** | **Tier/PPE** | **Concentration of a.s.** | **Estimated inhalation uptake (mg/kg bw/d)** | **Estimated dermal uptake (mg/kg bw/d)** | **Estimated total uptake (mg/kg bw/d)** |
| **Industrial users - Automated dipping - indoor** Scenarios [1.1.; 1.2.1.; 1.3.] | Tier 1/  None | 0.45% propiconazole | 5.63E-05 | 2.98E-01 | 2.98E-01 |
| 1.4% IPBC | 1.75E-04 | 3.66 | 3.66 |
| 0.2%  permethrin | 2.50E-05 | 1.74E-01 | 1.74E-01 |
| Tier 2/  Gloves  coverall | 0.45% propiconazole | 5.63E-05 | 3.14E-03 | 3.20E-03 |
| 1.4% IPBC | 1.75E-04 | 3.86E-02 | 3.88E-02 |
| 0.2%  permethrin | 2.50E-05 | 1.84E-03 | 1.86E-03 |
| **Industrial and professional users - Manual dipping - indoor** Scenario  [1.2.2.] | No scenarios need to be combined for the manual dipping application, as mixing and loading is included in the application task and post-application is not applicable. | | | | |
| **Industrial users - Flow coating (deluging) - indoor** Scenario[1.2.3] | No scenarios need to be combined for the flow coating application, as mixing and loading is included in the application task and post-application is covered by the application phase. | | | | |

***Professional exposure***

*Scenario [2.1. Mixing and Loading of RTU]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [2.1. Mixing and Loading of RTU]** | | |
| The solvent-based RTU product is delivered in IBC/drum (200 – 1000 L) or in a can/bucket/jerry can (up to 20 L). Dilution is not required for the RTU product.  For IBC/drum, the transfer of the RTU product is done automated by connecting lines.  According to HEEG opinion 18 (2013), "*where the wood preservative fluid is delivered by tanker and is transferred from the tanker into the dip tank using connecting hosing then, it could be assumed, providing the operator wears suitable PPE, exposure of the operator’s skin is minimal and does not need to be quantified.*"  For the automated mixing and loading, the inhalation exposure is considered to be less than during the individual applications phases and, thus, to be covered by them.  Alternatively, the RTU product is delivered in containers (up to 20 L) and decanted before application into smaller containers which can be handled manually.  For the manual mixing and loading task the “Mixing and loading Model 7 – pouring liquids” is used for dermal and inhalation exposure according to HEEG opinion 1 (2008). | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Exposure duration | 10 min |
| Indicative values | Dermal: 101 mg/min  Inhalation: 0.94 mg/m3 |
| Tier 2 | Gloves | Dermal: 1.01 mg/min (under gloves) |

**Calculations for Scenario [2.1. Mixing and Loading of RTU]**

In the following, the results of the calculations are provided for scenario 2.1 for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.1.] | Tier 1/ None | 1.47E-05 | 5.76E-03 | - | 5.77E-03 |
| Tier 2/  Gloves | 1.47E-05 | 5.76E-05 | - | 7.23E-05 |

In the following, the results of the calculations are provided for scenario 2.1. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.1.] | Tier 1/ None | 4.57E-05 | 7.07E-02 | - | 7.07E-02 |
| Tier 2/  Gloves | 4.57E-05 | 7.07E-04 | - | 7.53E-04 |

In the following, the results of the calculations are provided for scenario 2.1. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.1.] | Tier 1/ None | 6.53E-06 | 3.371E-03 | - | 3.37E-03 |
| Tier 2/  Gloves | 6.53E-06 | 3.33E-05 | - | 4.02E-05 |

**Further information and considerations on scenario [2.1. Mixing and Loading of RTU]**

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 5.

*Scenario [2.2.1. Application – Borehole filling without pressure]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [2.2.1. Application – Borehole filling without pressure]** | | |
| The RTU product containing 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin, respectively is stirred and funnelled into boreholes.  The TNsG 2002 “Mixing and loading Model 4” according to Biocides Human Health Exposure Methodology (version 1, October 2015) is used for dermal exposure estimation. The number of assumed loadings is 100. The recommended model does not provide an indicative value for inhalation exposure. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Number of loadings | 100 |
| Indicative values | Hands: 10 mg/loading |
| Tier 2 | Gloves | 90% protection |

**Calculations for Scenario [2.2.1. Application – Borehole filling without pressure]**

In the following, the results of the calculations are provided for scenario 2.2.1. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.1.] | Tier 1/ None | - | 5.7E-03 | - | 5.7E-03 |
| Tier 2/  Gloves | - | 5.7E-04 | - | 5.7E-04 |

In the following, the results of the calculations are provided for scenario 2.2.1. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.1.] | Tier 1/ None | - | 7.00E-02 | - | 7.00E-02 |
| Tier 2/  Gloves | - | 7.00E-03 | - | 7.00E-03 |

In the following, the results of the calculations are provided for scenario 2.2.1. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.1.] | Tier 1/ None | - | 3.33E-03 | - | 3.33E-03 |
| Tier 2/  Gloves | - | 3.33E-04 | - | 3.33E-04 |

**Further information and considerations on scenario [2.2.1. Application – Borehole filling without pressure]**

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 6.

*Scenario [2.2.2. Application – Borehole pressure injection]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [2.2.2. Application – Borehole pressure injection]** | | |
| The activities of the professional users are stirring the RTU product containing 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin, respectively and applying it to the drills using a wood injector (pressure impregnation).  The TNsG 2002 “Subsoil treatment Model 2” according to Biocides Human Health Exposure Methodology (version 1, October 2015) is used for dermal and inhalation exposure estimation. The exposure duration is 80 min. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Exposure duration | 80 min |
| Indicative values | Hands: 800 mg/min (without gloves)  Inhalation: 0.57 mg/m³ |
| Tier 2 | Gloves | Hands: 8 mg/min (inside gloves) |

**Calculations for Scenario [2.2.2. Application – Borehole pressure injection]**

In the following, the results of the calculations are provided for scenario 2.2.2. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.2.] | Tier 1/  none | 7.13E-05 | 3.65E-01 | - | 3.65E-01 |
| Tier 2/ Gloves | 7.13E-05 | 3.65E-03 | - | 3.72E-03 |

In the following, the results of the calculations are provided for scenario 2.2.2. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.2.] | Tier 1/  none | 2.22E-04 | 4.48 | - | 4.48 |
| Tier 2/ Gloves | 2.22E-04 | 4.48E-02 | - | 4.50E-02 |

In the following, the results of the calculations are provided for scenario 2.2.2. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.2.] | Tier 1/  none | 3.17E-05 | 2.13E-01 | - | 2.13E-01 |
| Tier 2/ Gloves | 3.17E-05 | 2.13E-03 | - | 2.17E-03 |

**Further information and considerations on scenario [2.2.2. Application – Borehole pressure injection]**

Qualitative risk assessments are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 7.

*Scenario [2.2.3. Application – Brushing and rolling]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [2.2.3. Application – Brushing and rolling]** | | |
| The activities of the professional users are stirring the RTU product containing 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin, respectively and applying it to wood using a brush indoors or outdoors.  The model “Professional brush treatment” (based on Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006) according to Biocides Human Health Exposure Methodology (October 2015) – PT8 is used for the dermal and inhalation exposure estimation.  The following assumptions are considered in the used model:   * Exposure duration: 240 min * Application area: 31.6 m²  The application area is calculated using the median work rate of 7.6 min/m² (acc. to TNsG 2002 "Consumer product painting Model 3" and the exposure duration of 240 min. Calculation: 1/7.6 min/m² \*240 min = 31.6 m² * The indicative values are normalized to 1% active substance and are referring to the exposure when brushing an area of 1 m² (acc. to Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006). | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Exposure duration | 240 min |
| Application area | 31.6 m² |
| Indicative values | Hands: 0.5417 mg/m²  Body: 0.2382 mg/m²  Inhalation (non-volatile compounds): 0.0016 mg/m² |
| Tier 2 | Gloves | 90% protection |

**Calculations for Scenario [2.2.3. Application – Brushing and rolling]**

In the following, the results of the calculations are provided for scenario 2.2.3. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.3.] | Tier1/ None | 3.79E-04 | 1.40E-02 | - | 1.44E-02 |
| Tier 2/  Gloves | 3.79E-04 | 5.27E-03 | - | 5.65E-03 |

In the following, the results of the calculations are provided for scenario 2.2.3. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.3.] | Tier1/ None | 1.18E-03 | 1.73E-01 | - | 1.74E-01 |
| Tier 2/  Gloves | 1.18E-03 | 6.47E-02 | - | 6.59E-02 |

In the following, the results of the calculations are provided for scenario 2.2.3. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.2.3.] | Tier1/ None | 1.69E-04 | 8.22E-03 | - | 8.39E-03 |
| Tier 2/  Gloves | 1.69E-04 | 3.08E-03 | - | 3.25E-03 |

**Further information and considerations on scenario [2.2.3. Application – Brushing and rolling]**

Qualitative risk assessments for IPBC are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 8.

*Scenario [2.3. Post-application – Washing out of a brush]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [2.3. Post-application – Washing out of a brush]** | | |
| After the application of the wood preservative, the brush is washed out.  The model “Exposure model primary exposure scenario - washing out of a brush which has been used to apply a paint” (HEEG opinion 11 – 2010) is used for dermal exposure estimation. During washing out of a brush, three dilutions steps reducing the concentrations of the active substances by a factor of 10 each are considered.  According to this model, inhalation exposure is considered to be negligible. | | |
|  | Parameters | Value |
| Tier 1 | Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 30% |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| No PPE | 0% protection |

**Calculations for Scenario [2.3. Post-application – Washing out of a brush]**

In the following, the results of the calculations are provided for scenario 2.3. for the RTU product containing **0.45% propiconazole.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.3.] | Tier1/ None | considered to be negligible | 6.15E-04 | - | 6.15E-04 |

In the following, the results of the calculations are provided for scenario 2.3. for the RTU product containing **1.4% IPBC.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.3.] | Tier1/ None | considered to be negligible | 7.55E-03 | - | 7.55E-03 |

In the following, the results of the calculations are provided for scenario 2.3. for the RTU product containing **0.2% permethrin.**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [2.3.] | Tier1/ None | considered to be negligible | 3.60E-04 | - | 3.60E-04 |

The calculation sheets are provided in 3.2.1 Human Health Risk Assessment Appendix 9.

**Further information and considerations on scenario [2.3. Post-application – Washing out of a brush by professionals]**

Qualitative risk assessments for IPBC are provided in chapter 2.2.6.3 “Risk characterisation for human health”.

*Combined scenarios*

Explanatory note:

The exposure calculated for the individual work tasks are combined (added up) for the following intended use:

* Use # 4: Borehole filling without pressure
* Use # 5: Borehole pressure injection
* Use # 6: Brushing/roller

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Summary table: combined systemic exposure from professional uses** | | | | | |
| **Scenarios combined** | **Tier/PPE** | **Concentration of a.s.** | **Estimated inhalation uptake (mg/kg bw/d)** | **Estimated dermal uptake (mg/kg bw/d)** | **Estimated total uptake (mg/kg bw/d)** |
| **Borehole filling without pressure**  Scenarios [2.1.; 2.2.1.] | Tier 1/  No PPE | 0.45% propiconazole | 1.47E-05 | 1.15E-02 | 1.15E-02 |
| 1.4% IPBC | 4.57E-04 | 1.41E-01 | 1.41E-01 |
| 0.2%  permethrin | 6.53E-06 | 6.70E-03 | 6.71E-03 |
| Tier 2/  Gloves during application | 0.45% propiconazole | 0.00E+00 | 6.27E-03 | 6.27E-03 |
| 1.4% IPBC | 1.47E-05 | 7.70E-02 | 7.70E-02 |
| 0.2%  permethrin | 4.57E-05 | 3.67E-03 | 3.67E-03 |
| **Borehole pressure injection**  Scenarios [2.1.; 2.2.2.] | Tier 1/  None | 0.45% propiconazole | 8.59E-05 | 3.71E-01 | 3.71E-01 |
| 1.4% IPBC | 2.67E-04 | 4.55 | 4.55 |
| 0.2%  permethrin | 3.82E-05 | 2.17E-01 | 2.17E-01 |
| Tier 2/  Gloves | 0.45% propiconazole | 8.59E-05 | 3.71E-03 | 3.79E-03 |
| 1.4% IPBC | 2.67E-04 | 4.55E-02 | 4.58E-02 |
| 0.2%  permethrin | 3.82E-05 | 2.17E-03 | 2.21E-03 |
| **Brushing/**  **roller**  Scenarios [2.1.; 2.2.3.; 2.3.] | Tier 1/  No PPE | 0.45% propiconazole | 3.94E-04 | 2.04E-02 | 2.08E-02 |
| 1.4% IPBC | 1.23E-03 | 2.51E-01 | 2.52E-01 |
| 0.2%  permethrin | 1.75E-04 | 1.19E-02 | 1.21E-02 |
| Tier 2/  Gloves during the M&L and application phase | 0.45% propiconazole | 3.94E-04 | 5.32E-03 | 5.72E-03 |
| 1.4% IPBC | 1.23E-03 | 6.54E-02 | 6.66E-02 |
| 0.2%  permethrin | 1.75E-04 | 3.11E-03 | 3.29E-03 |

Borehole injection should always be combined with a curative superficial treatment (brushing/rolling). The resulting exposure from the combined operation is calculated and included in the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Summary table: combined systemic exposure from professional uses** | | | | | |
| **Scenarios combined** | **Tier/PPE** | **Concentration of a.s.** | **Estimated inhalation uptake (mg/kg bw/d)** | **Estimated dermal uptake (mg/kg bw/d)** | **Estimated total uptake (mg/kg bw/d)** |
| **Borehole filling without pressure and brushing/ rolling**  Scenarios [2.1.; 2.2.1.; 2.2.3.; 2.3.]] | Tier 1/  No PPE | 0.45% propiconazole | 3.94E-04 | 2.61E-02 | 2.65E-02 |
| 1.4% IPBC | 1.23E-03 | 3.21E-01 | 3.22E-01 |
| 0.2%  permethrin | 1.76E-04 | 3.38E+00 | 3.38E+00 |
| Tier 2/  Gloves | 0.45% propiconazole | 3.94E-04 | 5.94E-03 | 6.34E-03 |
| 1.4% IPBC | 1.23E-03 | 7.30E-02 | 7.42E-02 |
| 0.2%  permethrin | 1.76E-04 | 3.47E-03 | 3.65E-03 |
| **Borehole pressure injection and brushing/ rolling**  Scenarios [2.1.; 2.2.2.; 2.2.3.; 2.3.]] | Tier 1/  None | 0.45% propiconazole | 4.65E-04 | 3.85E-01 | 3,86E-01 |
| 1.4% IPBC | 1.45E-03 | 4.73E+00 | 4.73E+00 |
| 0.2%  permethrin | 2.07E-04 | 3.59E+00 | 3.59E+00 |
| Tier 2/  Gloves | 0.45% propiconazole | 4.65E-04 | 9.59E-03 | 1.01E-02 |
| 1.4% IPBC | 1.45E-03 | 1.18E-01 | 1.19E-01 |
| 0.2%  permethrin | 2.07E-04 | 5.60E-03 | 5.81E-03 |

***Secondary exposure***

*Scenario [4.1.1. Sawing and sanding treated wood]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [4.1.1. Sawing and sanding treated wood]** | | |
| Cutting and sanding treated wood by professional worker is considered a chronic exposure scenario.  The application rate of 350 mL product/m² of the solvent-based product (taking into account the concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin) is considered the highest-end-retention.  According to TNsG 2002 User Guidance- Version 1, the model exposure data used in these calculations are derived from exposure studies on amateurs where no gloves were worn. Considering professionals would usually wear gloves, the exposure level would be lower in practice. Furthermore, the acute sanding scenario is extrapolated to the chronic situation by assuming that the exposure time is 6 hours per day.  For dermal exposure (hands - no gloves worn), the Permethrin concentration on the surface of timber is 0.133 mg a.s./cm², with the conservative assumption that the entire retained a.s. is present on the surface. The surface area of both palms of hands is 420 cm² and during prolonged and repeated contact 20% of the hand is contaminated (TNsG 2002, Part 3, p.51 and User Guidance, p.52). The transfer efficiency is 2% for rough-sawn wood (TNsG 2002, Part 2, p.206) and dermal uptake is 10% (TNsG 2002, Part 3, p.50).  During sawing/sanding of treated wood, dermal and inhalation exposure of workers is considered.  This secondary exposure scenario is based on TNsG 2002 User guidance - Version 1 and TNsG 2002, part III. | | |
|  | Parameters | Value |
| Tier 1 | Application rate | 350 mL/m² |
| Density of the product | 0.82 g/ml |
| Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 1.6% (for dried solutions) |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Hand area (palms of both hands) (adult) (acc. to HEEG 17) | 410 cm² |
| Assuming that 20% of hand area will be contaminated (adult). | 82 cm² |
| Transfer coefficient (acc. to TNsG 2007 for dried fluids on rough sawn wood) | 2% |
| Exposure duration | 6 h |
|  | Generated dust / m³ of sanded treated wood.  U.K. WEL of 5 mg/m3 wood dust (8-hour time-weighted average) | 5 mg/m³ |
| Density of wood (Mota version 5, 2013) | 0.4 g/cm³ |
|  | Volume of wooden post | 4000 cm³ |
|  | Untreated inner core of post | 992 cm³ |
|  | Volume of the outer 1cm layer | 3008 cm³ |

**Calculations for Scenario [4.1.1. Sawing and sanding treated wood]**

In the following, the results of the calculations are provided for scenario 4.1.1. considering the concentration of **0.45% propiconazole (highest application rate of the product of 350 mL/m²)**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.1.] | Tier 1/  No PPE | 2.68E-04 | 3.57E-04 | - | 6.25E-04 |

In the following, the results of the calculations are provided for scenario 4.1.1. considering the concentration of **1.4% IPBC (highest application rate of the product of 350 mL/m²)**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.1.] | Tier 1/  No PPE | 8.35E-04 | 2.34E-04 | - | 1.07E-03 |

In the following, the results of the calculations are provided for scenario 4.1.1. considering the concentration of **0.2% permethrin (highest application rate of the product of 350 mL/m²)**

| **Summary table: estimated exposure from professional uses** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.1.] | Tier 1/  No PPE | 1.19E-04 | 2.09E-04 | - | 3.28E-04 |

The calculation sheet is provided in 3.2.1 Human Health Risk Assessment Appendix 10.

**Further information and considerations on scenario [4.1.1. Sawing and sanding treated wood]**

Local exposure and risk assessment is not relevant for sawing and sanding treated dried wood, since the concentrations of the active substance and SoC to which dermal contact occurs is significantly reduced by the transfer coefficient of 2 % for dried fluids on rough sawn wood. For the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, it can be assumed that it is completely evaporated when the wood is dried.

Consequently, performance of a local exposure and risk assessment is not required.

***Exposure of the general public***

*Scenario [4.1.2. Sawing and sanding treated wood]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [4.1.2. Sawing and sanding treated wood]** | | |
| Cutting and sanding treated wood by general public (adults) is considered an acute exposure scenario.  The application rate of 350 mL product/m² of the solvent-based products (taking into account the concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin) is considered the highest-end-retention.  For the acute situation, exposure duration of 1 h is assumed. The model exposure data used in these calculations are derived from exposure studies on amateurs where no gloves were worn.  During sawing/sanding of treated wood, dermal and inhalation exposure of adults is considered.  This secondary exposure scenario is based on TNsG 2002 User guidance - Version 1 and TNsG 2002, part III. | | |
|  | Parameters | Value |
| Tier 1 | Application rate | 350 mL/m² |
| Density of the product | 0.82 g/ml |
| Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 1.6% (for dried solutions) |
| Dermal absorption - Permethrin | 10% |
| Body weight | 60 kg |
| Inhalation rate (short- and long-term;  acc. to HEEG opinion “Default human factor values for use in exposure assessments  for biocidal products”, 2013) | 1.25 m³/h (0.021 m³/min) |
| Hand area (palms of both hands) (adult) (acc. to HEEG 17) | 410 cm² |
| Assuming that 20% of hand area will be contaminated (adult). | 82 cm² |
| Transfer coefficient (acc. to TNsG 2007 for dried fluids on rough sawn wood) | 2% |
| Exposure duration | 1 h |
| Generated dust / m³ of sanded treated wood.  U.K. WEL of 5 mg/m3 wood dust (8-hour time-weighted average) | 5 mg/m³ |
| Density of wood (Mota version 5, 2013) | 0.4 g/cm³ |
| Volume of wooden post | 4000 cm³ |
| Untreated inner core of post | 992 cm³ |
| Volume of the outer 1cm layer | 3008 cm³ |

**Calculations for Scenario [4.1.2. Sawing and sanding treated wood]**

In the following, the results of the calculations are provided for scenario 4.1.2. considering the concentration of **0.45% propiconazole (highest application rate of the product of 350 mL/m²)**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.2.] | Tier 1/ No PPE | 4.47E-05 | 3.57E-04 | - | 4.01E-04 |

In the following, the results of the calculations are provided for scenario 4.1.2. considering the highest in-use concentration of **1.4% IPBC (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.2.] | Tier 1/ No PPE | 1.39E-04 | 2.34E-04 | - | 3.73E-04 |

In the following, the results of the calculations are provided for scenario 4.1.2. considering the highest in-use concentration of **0.2% permethrin (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.1.2.] | Tier 1/ No PPE | 1.99E-05 | 2.09E-04 | - | 2.29E-04 |

The calculation sheet is provided in 3.2.1 Human Health Risk Assessment Appendix 11.

**Further information and considerations on scenario [4.1.2. Sawing and sanding treated wood]**

Local exposure and risk assessment is not relevant for sawing and sanding treated dried wood, since the concentrations of the active substance and SoC to which dermal contact occurs is reduced by the transfer coefficient of 2 % for dried fluids on rough sawn wood.

For the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, it can be assumed that it is completely evaporated when the wood is dried.

Consequently, performance of a local exposure and risk assessment is not required.

*Scenario [4.2. Chewing wood off-cut]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [4.2. Chewing wood off-cut]** | | |
| Infant picks up and chews wood off-cut, which has been treated with wood preservative. This scenario is considered an acute exposure scenario.  The application rate of 350 mL product/m² of the solvent-based products (taking into account the concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin) is considered the highest-end-retention.  For infants who are chewing wood it is assumed that the active substance in the treated timber is located in the outer 1 cm layer. It is assumed that the infant is chewing a 4 cm × 4 cm × 1 cm = 16 cm³ chip and in doing so extracts 10% of the active substance.  For children this scenario is not relevant according to TNsG 2002. This scenario is regarded as unrealistic for children, as opposed to infants, because children are highly unlikely to chew treated wood in any significant amounts.  This secondary exposure scenario is based on User guidance Version 1, 2002 and TNsG 2002, part III. | | |
|  | Parameters | Value |
| Tier 1 | Application rate | 350 mL/m² |
| Density of product | 0.82 g/mL |
| Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Oral absorption - Propiconazole | 100% |
| Oral absorption - IPBC | 100% |
| Oral absorption - Permethrin | 100% |
| Body weight of infant (acc. to HEEG opinion 17 (2013) | 8 kg |
| Oral uptake by extraction of a.s. from the wood (acc. to User Guidance (2002)) | 10% |
| Volume of wooden post | 4000 cm³ |
| Untreated inner core of post | 992 cm³ |
| Volume of the outer 1cm layer | 3008 cm³ |
| Volume of the piece of wood | 16 cm³ |

**Calculations for Scenario [4.2. Chewing wood off-cut]**

In the following, the results of the calculations are provided for scenario 4.2. considering the concentration of **0.45% propiconazole (highest application rate of the product of 350 mL/m²)**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake** | **Estimated dermal uptake** | **Estimated oral uptake** | **Estimated total uptake** |
| Scenario [4.2.] | Tier 1/No PPE | - | - | 3.43E-02 | 3.43E-02 |

In the following, the results of the calculations are provided for scenario 4.2. considering the concentration of **1.4% IPBC (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake** | **Estimated dermal uptake** | **Estimated oral uptake** | **Estimated total uptake** |
| Scenario [4.2.] | Tier 1/No PPE | - | - | 1.07E-01 | 1.07E-01 |

In the following, the results of the calculations are provided for scenario 4.2. considering the concentration of **0.2% permethrin (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake** | **Estimated dermal uptake** | **Estimated oral uptake** | **Estimated total uptake** |
| Scenario [4.2.] | Tier 1/No PPE | - | - | 1.53E-02 | 1.53E-02 |

The calculation sheet is provided in 3.2.1 Human Health Risk Assessment Appendix 12.

**Further information and considerations on scenario [4.2. Chewing wood off-cut]**

The only local effects that may be relevant for consideration by chewing treated wood cut-off is skin sensitisation (H317) due to IPBC. Eye irritation effects (H319) is not relevant for this scenario as there is no eye exposure expected by chewing. Only 10% of the amount of IPBC in the wood off-cut can be taken up orally by extraction from the wood. Assuming chewing for 1 min, and the saliva production of 1.5 mL/min (CAR Bardap), 10% x 8.549 mg IPBC (contained in a wood off-cut, see Appendix 12) ÷ 1.5 mL = 0.5699 mg IPBC may be present per mL saliva (i.e. 0.05% w/v). As the concentration of IPBC will be below the general cut-off value for skin sensitisation effect (1%), IPBC in the salvia would not result in a concentration relevant for skin sensitisation.

For the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, it can be assumed that it is completely evaporated when the wood is dried.

Consequently, performance of a local exposure and risk assessment is not required.

*Scenario [4.3. Playing on playground structure outdoors and mouthing]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [4.3. Playing on playground structure outdoors and mouthing]** | | |
| Infant (as a worst-case for children) playing on and mouthing weathered structure.  These scenarios are considered chronic exposure scenarios.  The application rate of 350 mL product/m² of the solvent-based products (taking into account the concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin) is considered the highest-end-retention.  In this scenario, during playing on timber structure, dermal as well as oral (through hand-to-mouth transfer) exposure is considered.  This secondary exposure scenario is based on TNsG 2002 User guidance - Version 1 and TNsG 2002, part III, and on the HEAdhoc Recommendation no. 5 (2015). | | |
|  | Parameters | Value |
| Tier 1 | Application rate | 350 mL/m² |
| Propiconazole | 0.45% |
| IPBC | 1.4% |
| Permethrin | 0.2% |
| Dermal absorption - Propiconazole | 7.6% |
| Dermal absorption - IPBC | 1.6% (for dried solutions) |
| Dermal absorption - Permethrin | 10% |
| Oral absorption | 100% |
| Body weight of infant (acc. to HEEG opinion 17 (2013) | 8 kg |
| Area of hands - both palms and backs of both hands (infant) (acc. to HEEG opinion 17 (2013)) | 196.8 cm² |
| Contamination of hands – it is assumed that 20% of hand area will be contaminated. | 20% |
| Dislodgeable fraction (acc. to TNsG 2007 for dried objects on wood) | 2% |
| Transfer coefficient from hand to mouth (infant/child) (HEAdhoc Recommendation no. 5, 2015)  (50% of the potential dermal exposure) | 50% |
| Volume of wooden post | 4000 cm³ |
| Untreated inner core of post | 992 cm³ |
| Volume of the outer 1cm layer | 3008 cm³ |

**Calculations for Scenario [4.3. Playing on playground structure outdoors and mouthing]**

In the following, the results of the calculations are provided for scenario 4.3. considering the concentration of **0.45% propiconazole (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.3.] - infant | Tier 1 / No PPE | - | 1.28E-03 | 8.45E-03 | 9.73E-03 |

In the following, the results of the calculations are provided for scenario 4.3. considering the highest in-use concentration of **1.4% IPBC (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.3.] - infant | Tier 1 / No PPE | - | 8.41E-04 | 2.63E-02 | 2.71E-02 |

In the following, the results of the calculations are provided for scenario 4.3. considering the highest in-use concentration of **0.2% permethrin (highest application rate of the product of 350 mL/m²).**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.3.] - infant | Tier 1 / No PPE | - | 7.51E-04 | 3.76E-03 | 4.51E-03 |

The calculation sheet is provided in 3.2.1 Human Health Risk Assessment Appendix 13.

**Further information and considerations on scenario [4.3. Playing on playground structure outdoors and mouthing]**

Local exposure and risk assessment is not relevant for playing on playground structure outdoors and mouthing, since the concentrations of the active substances and the SoC to which dermal contact occurs are reduced by the transfer coefficient of 2 % for dried fluids on rough sawn wood.

For the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, it can be assumed that it is completely evaporated when the wood is dried.

Consequently, performance of a local exposure and risk assessment is not required.

*Scenario [4.4. Inhalation of volatilized residues]*

|  |  |  |
| --- | --- | --- |
| **Description of Scenario [4.4. Inhalation of volatilized residues]** | | |
| Chronic exposure to wood preservatives may arise via residues volatilised from treated wood indoors.  Propiconazole and permethrin have very low vapour pressures of 5.6E-05 Pa and 2.155E-06 Pa, respectively (at 20°C). IPBC has a slightly higher vapour pressure of 1.4E-03 Pa (at 20°C). Although, inhalation from treated dried wood is considered to be very low, exposure by volatilised residues indoors was calculated using the SVC (saturated vapour concentration) approach (according to HEEG opinion on Assessment of Inhalation Exposure of Volatilised Biocide Active Substance, 2011). | | |
|  | Parameters | Value |
| Tier 1 | Vapour pressure of propiconazole | 5.6E-05 Pa |
| Vapour pressure of IPBC | 1.4E-03 Pa |
| Vapour pressure of permethrin | 2.155E-06 Pa |
| MW of propiconazole | 342.2 g/mol |
| MW of IPBC | 281.1 g/mol |
| MW of permethrin | 391.29 g/mol |
| Inhalation rate of infant | 5.4 m³/24 h |
| Inhalation rate of child | 12 m³/24 h |
| Inhalation rate of adult | 16 m³/24 h |
| Body weight of infant | 8 kg |
| Body weight of child | 23.9 kg |
| Body weight of adult | 60 kg |

***Note NL CA:*** *The vapour pressure reported in the LoEP Assessment Report of IPBC (PT8) is: 2.36-4.5 × 10–3 Pa (at 25 °C). Using this value for the assessment does not affect the outcome of the risk assessment.*

**Calculations for Scenario [4.4. Inhalation of volatilized residues]**

In the following, the results of the calculations are provided for scenario 4.4. for **propiconazole.**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.4.] – infant | Tier 1 / No PPE | 5.31E-03 | - | - | 5.31E-03 |
| Scenario [4.4.] – child | Tier 1 / No PPE | 3.95E-03 | - | - | 3.95E-03 |
| Scenario [4.3.] - adult | Tier 1 / No PPE | 2.10E-03 | - | - | 2.10E-03 |

In the following, the results of the calculations are provided for scenario 4.4. for **IPBC.**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.4.] – infant | Tier 1 / No PPE | 1.09E-01 | - | - | 1.09E-01 |
| Scenario [4.4.] – child | Tier 1 / No PPE | 8.11E-02 | - | - | 8.11E-02 |
| Scenario [4.4.] - adult | Tier 1 / No PPE | 4.31E-02 | - | - | 4.31E-02 |

In the following, the results of the calculations are provided for scenario 4.4. for **permethrin.**

| **Summary table: systemic exposure of the general public** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Exposure scenario** | **Tier/PPE** | **Estimated inhalation uptake (mg/kg bw)** | **Estimated dermal uptake (mg/kg bw)** | **Estimated oral uptake (mg/kg bw)** | **Estimated total uptake (mg/kg bw)** |
| Scenario [4.4.] – infant | Tier 1 / No PPE | 2.34E-04 | - | - | 2.34E-04 |
| Scenario [4.4.] – child | Tier 1 / No PPE | 1.74E-04 | - | - | 1.74E-04 |
| Scenario [4.4.] - adult | Tier 1 / No PPE | 9.23E-05 | - | - | 9.23E-05 |

The calculation sheet is provided in 3.2.1 Human Health Risk Assessment Appendix 14.

**Further information and considerations on scenario [4.4. Inhalation of volatilized residues]**

Local exposure and risk assessment is not relevant for inhalation of volatilized residues. When the wood is dried, it can be assumed that the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” it is completely evaporated

Consequently, performance of a local exposure and risk assessment is not required.

***Monitoring data***

Concerning human exposure, no monitoring data are available.

***Dietary exposure***

Not required since Koranol Holzbau Grund is not used in a manner which may cause direct contact with food and feed, or via livestock exposure, considering the RMM as included in the general risk mitigation section of the authorised use(s): “ Do not use on wood which may come in direct contact with food, feeding stuff and livestock animals.”.

***Exposure associated with production, formulation and disposal of the biocidal product***

**Production/formulation of the biocidal product**

The production/formulation of the biocidal product is done in accordance with local and national occupational health and safety regulations.

The production is done in a closed system. The raw materials are fed sequentially, using automatic dosing equipment, into a closed stainless steel vessel equipped with a mixer and air extraction to prevent emission into the working environment. For working steps, for which exposure of workers cannot be excluded, such as connecting lines or quality control, the workers use adequate PPE. The workers are trained professionals.

From the vessels the finished product is filled into the packaging for transport. The filling process is done with air exhaust in place. Thus, exposure of industrial workers is minimal.

**Environmental exposure**

In case of spillages, the biocidal product is taken up with inert material (sand, earth, chemical absorbent, etc.) and collected in dedicated properly labelled drums. It is disposed of as chemical waste in accordance with local and national laws and regulations. Consequently, there is no release into the environment and, thus, no environmental exposure assessment is applicable.

**Disposal of the biocidal product**

The waste disposal has to be done in accordance with Directive 2008/98/EC, covering waste and dangerous waste. For the disposal of the product and packaging, the allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

***Aggregated exposure***

No guidance for aggregated exposure is available.

***Summary of exposure assessment***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenarios and values to be used in risk assessment** | | | | | | | |
| **Scenario number** | **Exposed group** | **Tier/PPE** | **Estimated total uptake (mg/kg bw/d) of**  **propiconazole** | | **Estimated total uptake (mg/kg bw/d) of**  **IPBC** | **Estimated total uptake (mg/kg bw/d) of**  **permethrin** | |
| 1.1. | industrials |  | negligible | | | | |
| 1.2.1. | industrials | Tier 1/  none | 0.149 | 1.83 | | | 8.72E-02 |
| Tier 2/  Gloves  coverall | 1.57E-03 | 1.93E-02 | | | 9.19E-04 |
| 1.2.2. | industrials and professionals | Tier 1/  none | 4.70E-01 | 5.77 | | | 2.75E-01 |
| Tier 2/  Gloves  coverall | 7.49E-03 | 9.15E-02 | | | 4.37E-03 |
| 1.2.3. | industrials | Tier 1/  none | 9.40E-01 | 1.15E+01 | | | 5.50E-01 |
| Tier 2/  Gloves  impermeable coverall | 9.49E-03 | 1.16E-01 | | | 5.54E-03 |
| 1.3. | industrials | Tier 1/  none | 0.149 | 1.83 | | | 8.72E-02 |
| Tier 2/  Gloves  coverall | 1.63E-03 | 1.95E-02 | | | 9.44E-04 |
| Combined  1.1, 1.2.1, 1.3 | industrials | Tier 1/  none | 2.98E-01 | 3.66E+00 | | | 1.74E-01 |
| Tier 2/ gloves, coverall | 3.20E-03 | 3.88E-02 | | | 1.86E-03 |
| 2.1. | professionals | Tier 1/  none | 5.77E-03 | 7.07E-02 | | | 3.37E-03 |
| Tier 2/  Gloves | 7.23E-05 | 7.53E-04 | | | 4.02E-05 |
| 2.2.1. | professionals | Tier1/ None | 5.70E-03 | 7.00E-02 | | | 3.33E-03 |
| Tier 2/  Gloves | 5.70E-04 | 7.00E-03 | | | 3.33E-04 |
| 2.2.2. | professionals | Tier 1/ none | 3.65E-01 | 4.48 | | | 2.13E-01 |
| Tier2/ Gloves | 3.72E-03 | 4.50E-02 | | | 2.17E-03 |
| 2.2.3. | professionals | Tier1/ None | 1.44E-02 | 1.74E-01 | | | 8.39E-03 |
| Tier2/ Gloves | 5.65E-03 | 6.59E-02 | | | 3.25E-03 |
| 2.3. | professionals | Tier1/ None | 6.15E-04 | 7.55E-03 | | | 3.60E-04 |
| Combined  2.1, 2.2.1 | professionals | Tier 1/  none | 1.15E-02 | 1.41E-01 | | | 6.71E-03 |
| Combined  2.1, 2.2.2 | professionals | Tier 1/  none | 3.71E-01 | 4.55E | | | 2.71E-01 |
| Tier 2/  gloves | 3.79E-03 | 4.58E-02 | | | 2.21E-03 |
| Combined  2.1, 2.2.3, 2.3 | professionals | Tier 1/  none | 2.08E-02 | 2.52E-01 | | | 1.21E-02 |
| Tier 2/ gloves (during M&L and application only) | 5.72E-03 | 6.66E-02 | | | 3.29E-03 |
| 4.1.1. – secondary chronic exposure | professionals | Tier1/ None | 6.25E-04 | 1.07E-03 | | | 3.28E-04 |
| 4.1.2. – secondary acute exposure | general public –adult | Tier1/ None | 4.01E-04 | 3.73E-04 | | | 2.29E-04 |
| 4.2. – secondary acute exposure | general public - infant | Tier1/ None | 3.43E-02 | 1.07E-01 | | | 1.53E-02 |
| 4.3. – secondary chronic exposure | general public - infant | Tier1/ None | 9.73E-03 | 2.71E-02 | | | 4.51E-03 |
| 4.4. – secondary chronic exposure | general public - infant | Tier1/ None | 5.31E-03 | 0.109 | | | 2.34E-04 |
| general public - child | Tier1/ None | 3.95E-03 | 8.11E-02 | | | 1.74E-04 |
| general public - adult | Tier1/ None | 2.10E-03 | 4.31E-02 | | | 9.23E-05 |

#### Risk characterisation for human health

**Reference values to be used in Risk Characterisation for Propiconazole**

The data provided in the following table are according to the AR on propiconazole (PT8 – 2007, adapted LoEP PT7).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reference** | **Study** | **NOAEL (LOAEL)** | **AF1** | **Correction for oral absorption** | **Value** |
| AELshort-term | Developmental study in rat | NOAEL: 30 mg/kg bw/d | 100 | - | 0.3 mg/kg bw/d |
| AELmedium-term | 2-generation rat study | NOAEL: 8 mg/kg bw/d | 100 | - | 0.08 mg/kg bw/d |
| AELlong-term | 2-year rat study | NOAEL: 3.6 mg/kg bw/d | 100 | - | 0.04 mg/kg bw/d |
| ARfD | - | - | - | - | n.r. |
| ADI | - | - | - | - | n.r. |

1The default AF of 100 is applied on the basis of a 10-fold factor for inter-species variation and a 10 factor for intra-species variation.

n.r.: not relevant

**Reference values to be used in Risk Characterisation for IPBC**

The data provided in the following table are according to the AR on IPBC (PT13 – 2015).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reference** | **Study** | **NOAEL (LOAEL)** | **AF1** | **Correction for oral absorption** | **Value** |
| AELshort-term | 90 day gavage rat study | 35 mg/kg bw/d | 100 | - | 0.35 mg/kg bw/d |
| AELmedium-term | - | - | - | - | - |
| AELlong-term | 2 years rats study | 20 mg/kg bw/d | 100 | - | 0.2 mg/kg bw/d |
| ARfD | - | - | - | - | n.r. |
| ADI | - | - | - | - | n.r. |

1The default AF of 100 is applied on the basis of a 10-fold factor for inter-species variation and a 10 factor for intra-species variation.

n.r.: not relevant

**Reference values to be used in Risk Characterisation for Permethrin**

The data provided in the following table are according to the AR on permethrin (PT8 – 2014).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reference** | **Study** | **NOAEL (LOAEL)** | **AF1** | **Correction for oral absorption** | **Value** |
| AELshort-term | 2 year oral study in rats (acute effects) | 59.43 mg/kg bw/d2 | 100 | - | 0.5 mg/kg bw/d2 |
| AELmedium-term | 1 year study in dog | 5 mg/kg bw/d | 100 | - | 0.05 mg/kg bw/d |
| AELlong-term | 1 year study in dog | 5 mg/kg bw/d | 100 | - | 0.05 mg/kg bw/d |
| ARfD | - | - | - | - | n.r. |
| ADI | - | - | - | - | n.r. |

1The default AF of 100 is applied on the basis of a 10-fold factor for inter-species variation and a 10 factor for intra-species variation.

2According to AR (PT8 – 2014), *“dividing the NOAEL value 59.43-mg/kg bw/day by an overall assessment factor of 100 derives a reference value of 0.59-mg/kg bw/day. However, this AELacute from an inhalation study enquires estimate of received dose with all the attendant uncertainties. The oral Ishmael and Litchfield gives a very similar AEL of 0.5 mg/kg bw/day Therefore, ARfD or AELacute reference value is set at of 0.5 mg/kg bw/day.”*

n.r.: not relevant

**Maximum residue limits or equivalent**

Not relevant

***Risk for industrial users***

**General remark:**

The results reflect industrial applications using the RTU product containing 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin.

**Systemic effects**

In the following table, the results are provided for **propiconazole**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing/  loading of RTU / [1.1.] | Tier 1/  none | 3.6 | 0.04 | negligible | negligible | yes |
| Application -Automated dipping/ [1.2.1.] | Tier 1/  none | 3.6 | 0.04 | 0.149 | 372.8 | no |
| Tier 2/  Gloves  coverall | 3.6 | 0.04 | 1.57E-03 | 3.9 | yes |
| Application -Manual dipping/ [1.2.2.] | Tier 1/  none | 3.6 | 0.04 | 4.70E-01 | 1175 | no |
| Tier 2/  Gloves  coverall | 3.6 | 0.04 | 7.49E-03 | 18.7 | yes |
| Application -Flow coating (deluging) / [1.2.3.] | Tier 1/  none | 3.6 | 0.04 | 9.40E-01 | 2350 | no |
| Tier 2/  Gloves  impermeable coverall | 3.6 | 0.04 | 9.49E-03 | 23.7 | yes |
| Post-application -System maintenance / [1.3.] | Tier 1/  None | 3.6 | 0.04 | 0.149 | 372.9 | no |
| Tier 2/  Gloves  coverall | 3.6 | 0.04 | 1.63E-03 | 4.1 | yes |

In the following table, the results are provided for **IPBC**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing/  loading of RTU / [1.1.] | Tier 1/  none | 20 | 0.2 | negligible | negligible | yes |
| Application -Automated dipping / [1.2.1.] | Tier 1/  none | 20 | 0.2 | 1.83 | 915.5 | no |
| Tier 2/  Gloves  coverall | 20 | 0.2 | 1.93E-02 | 9.7 | yes |
| Application -Manual dipping / [1.2.2.] | Tier 1/  none | 20 | 0.2 | 5.77 | 2885.5 | no |
| Tier 2/  Gloves  coverall | 20 | 0.2 | 9.15E-02 | 45.8 | yes |
| Application -Flow coating (deluging) / [1.2.3.] | Tier 1/  none | 20 | 0.2 | 1.15E+01 | 5770.9 | no |
| Tier 2/  Gloves  impermeable coverall | 20 | 0.2 | 1.16E-01 | 57.9 | yes |
| Post-application -System maintenance / [1.3.] | Tier 1/  none | 20 | 0.2 | 1.83 | 915.6 | no |
| Tier 2/  Gloves  coverall | 20 | 0.2 | 1.95E-02 | 9.7 | yes |

In the following table, the results are provided for **permethrin**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing/  loading of RTU / [1.1.] | Tier 1/  none | 5 | 0.05 | negligible | negligible | yes |
| Application -Automated dipping/ [1.2.1.] | Tier 1/  none | 5 | 0.05 | 8.72E-02 | 174.4 | no |
| Tier 2/  Gloves  coverall | 5 | 0.05 | 9.19E-04 | 1.8 | yes |
| Application -Manual dipping/ [1.2.2.] | Tier 1/  none | 5 | 0.05 | 2.75E-01 | 549.64 | no |
| Tier 2/  Gloves  coverall | 5 | 0.05 | 4.37E-03 | 8.74 | yes |
| Application -Flow coating (deluging)/ [1.2.3.] | Tier 1/  none | 5 | 0.05 | 5.50E-01 | 1099 | no |
| Tier 2/  Gloves  impermeable coverall | 5 | 0.05 | 5.54E-03 | 11.1 | yes |
| Post-application -System maintenance / [1.3.] | Tier 1/  none | 5 | 0.05 | 8.72E-02 | 174.44 | no |
| Tier 2/  Gloves  coverall | 5 | 0.05 | 9.44E-04 | 1.89 | yes |

**Combined scenarios**

In the following table, the results are provided for **propiconazole**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Automated dipping**  Scenarios [1.1.; 1.2.1.; 1.3.] | Tier 1/  None | 3.6 | 0.04 | 0.298 | 746 | no |
| Tier 2/  Gloves  coverall | 3.6 | 0.04 | 3.20E-03 | 8.0 | yes |

In the following table, the results are provided for **IPBC**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Automated dipping**  Scenarios [1.1.; 1.2.1.; 1.3.] | Tier 1/  None | 20 | 0.2 | 3.66 | 1831.1 | no |
| Tier 2/  Gloves  coverall | 20 | 0.2 | 3.88E-02 | 19.4 | yes |

In the following table, the results are provided for **permethrin**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier / PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Automated dipping**  Scenarios [1.1.; 1.2.1.; 1.3.] | Tier 1/  None | 5 | 0.05 | 0.174 | 348.8 | no |
| Tier 2/  Gloves  coverall | 5 | 0.05 | 1.86E-03 | 3.7 | yes |

**Local effects**

**Qualitative exposure and risk assessment**

With respect to local effects, the RTU product has a classification of the RTU product with Skin Sens. 1 (H317), Eye Irrit. 2 (H319), STOT RE 2 (H373), Asp. Tox. 1 (H304) and EUH066.

The qualitative exposure and risk assessment for local effects is performed based on the Guidance on the Biocidal Products Regulation, Vol III, Part B (2015) and is addressed in the following table (on next page).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Hazard** | | | **Exposure** | | | | | | | **Risk** |
| **Hazard category** | **Effects in terms of C&L** | **Additional relevant hazard information** | **PT** | **Who is exposed?** | **Tasks, uses, processes** | **Potential exposure route** | **Frequency and duration of potential exposure** | **Potential degree of exposure** | **Relevant RMM\* & PPE\*\*** | **Conclusion on risk** |
| Low | Asp. Tox. 1; H304 | - | 8 | Industrials | The RTU product Koranol Holzbau Grund containing propiconazole, IPBC and permethrin is used undiluted by industrials for wood preservation by automated dipping (use # 1), manual dipping (use # 2; is also used by professionals) and flow coating (use # 3). | Skin  Eye  Inhalation (Larynx) | Daily; More than few hours  per day | Use # 1&3:  High level of containment,  Use # 1-3:  Controlled exposure  with technical RMM, PPE and good ventilation  Use # 1&3:  practically negligible exposure due to automated tasks (e.g. automated mixing and loading or automated application)  potential exposure to undiluted product is only during brief contact during connecting lines, with technical RMM and PPE | Technical and organisational RMM adequate for the low and medium category are achievable:  + adverse effect expected only after repeated, prolonged exposure (STOT-RE and EUH066)  + high degree of operational RMMs (high level containment (only for use #1 and #3), easy maintenance, minimization of manual phases, regular cleaning of equipment and work area, good standard of general ventilation)  + high degree of organisational RMMs (permit to work procedures, trained workers, intensive supervision of workers for proper use of RMM, good standard of personal hygiene)  + Avoid breathing dust/fume/gas/mist/vapours/spray (P261).  + professionals using appropriate PPE (gloves, protective clothing, eye /face protection) (P280) | Acceptable:  + reversible effect (H319)  + installed RMM at place  + trained workers  + use of appropriate PPE |
| Low | EUH 066 | - |
| Low | Eye Irrit. 2; H319 | - |
| Medium | Skin Sens. 1; H317 | - |
| Low | STOT RE 2; H373 | - |

\* RMM: risk mitigation measures

\*\* PPE: personal protective equipment

**Conclusion**

The solvent-based RTU product Koranol Holzbau Grund containing propiconazole, IPBC, permethrin and the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” is used undiluted by industrials for wood preservation by automated dipping (use # 1), manual dipping (use # 2; also used by professionals) and flow coating (use # 3).

Workers in industrial premises are trained professionals. Appropriate PPE (gloves, impermeable coverall (95% protection), eye/face protection) should be used for exposure control.

Using the RTU product containing 0.45% propiconazole, 1.4% IPBC, 0.2% permethrin and 82.25% “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, the following risk characterisation is given:

Tier 2: Exposure considering PPE (Tier 2: gloves (90% protection) and coverall (90% protection) during automated dipping by industrials results in 8.0%, 19.4% and 3.7% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 2: Exposure considering PPE (Tier 2: gloves (90% protection) and coverall (90% protection) during manual dipping by industrials and professionals results in 18.7%, 45.8% and 8.7% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 2: Exposure considering PPE (Tier 2: gloves (90% protection) and impermeable coverall (95% protection) during flow coating (deluging) by industrials results in 23.7%, 57.9% and 11.1% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

With respect to local effects, coverall, gloves, and eye/face protection are to be used since the RTU product is classified as eye irritating and skin sensitizer.

In conclusion, the risk during the individual intended uses (use # 1-3) is acceptable for the RTU product Koranol Holzbau Grund, if appropriate protective personal equipment (gloves, coverall (impermeable coverall for flow coating), eye/face protection) is used during the individual application phases.

eCA note: Please note that in commenting phase the conclusion is amended and impermeable coveralls are not needed based on the tier 3 risk assessment for combined exposure to the three substances. A standard coverall (90% protection) additional to gloves as PPE is sufficient to ensure safe use either for exposure to the single substances during deluging as well as for combined exposure assessment to all three active substances (see p147).

***Risk for professional users***

**General remark:**

The results reflect the concentrations of 0.45%, 1.4% and 0.2% of propiconazole, IPBC and permethrin, respectively and the highest application rate of 350 mL/m2 of the RTU product to be applied by professional users.

**Systemic effects**

In the following table, the results are provided for **propiconazole**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier/**  **PPE** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing and Loading of RTU / [2.1.] | Tier 1/  none | 3.6 | 0.04 | 5.77E-03 | 14.4 | yes |
| Tier 2/  gloves | 3.6 | 0.04 | 7.23E-05 | 0.18 | yes |
| Application – Borehole filling without pressure / [2.2.1.] | Tier 1 | 3.6 | 0.04 | 5.70E-03 | 14.25 | yes |
| Tier 2/  gloves | 3.6 | 0.04 | 5.70E-04 | 1.43 | yes |
| Application – Borehole pressure injection / [2.2.2.] | Tier 1/  none | 3.6 | 0.04 | 3.65E-01 | 912.2 | no |
| Tier 2/ Gloves | 3.6 | 0.04 | 3.72E-03 | 9.30 | yes |
| Application – Brushing and rolling/ [2.2.3.] | Tier 1 | 3.6 | 0.04 | 1.44E-02 | 36.00 | yes |
| Tier 2/ Gloves | 3.6 | 0.04 | 5.65E-03 | 14.13 | yes |
| Post-application – Washing out of a brush / [2.3.] | Tier 1 | 3.6 | 0.04 | 6.15E-04 | 1.54 | yes |
| Sawing and sanding treated wood/ [4.1.1.] | Tier 1 | 3.6 | 0.04 | 6.25E-04 | 1.56 | yes |

In the following table, the results are provided for **IPBC**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing and Loading of RTU / [2.1.] | Tier 1/  none | 20 | 0.2 | 7.07E-02 | 35.4 | yes |
| Tier 2/  gloves | 20 | 0.2 | 7.53E-04 | 0.4 | yes |
| Application – Borehole filling without pressure / [2.2.1.] | Tier 1 | 20 | 0.2 | 7.00E-02 | 35.0 | yes |
| Tier 2/  gloves | 20 | 0.2 | 7.00E-03 | 3.5 | yes |
| Application – Borehole pressure injection/ [2.2.2.] | Tier 1/  none | 20 | 0.2 | 4.48 | 2240.1 | no |
| Tier 2/  Gloves | 20 | 0.2 | 4.50E-02 | 22.5 | yes |
| Application – Brushing and rolling/ [2.2.3.] | Tier 1 | 20 | 0.2 | 1.74E-01 | 86.9 | yes |
| Tier 2/  Gloves | 20 | 0.2 | 6.59E-02 | 32.9 | yes |
| Post-application – Washing out of a brush / [2.3.] | Tier 1 | 20 | 0.2 | 7.55E-03 | 3.8 | yes |
| Sawing and sanding treated wood/ [4.1.1.] | Tier 1 | 20 | 0.2 | 1.07E-03 | 0.5 | yes |

In the following table, the results are provided for **permethrin**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| Mixing and Loading of RTU / [2.1.] | Tier 1/  none | 5 | 0.05 | 3.37E-03 | 6.75 | yes |
| Tier 2/  gloves | 5 | 0.05 | 4.02E-05 | 0.08 | yes |
| Application – Borehole filling without pressure / [2.2.1.] | Tier 1 | 5 | 0.05 | 3.33E-03 | 6.67 | yes |
| Tier 2/  gloves | 5 | 0.05 | 3.33E-04 | 0.67 | yes |
| Application –Borehole pressure injection / [2.2.2.] | Tier 1/  none | 5 | 0.05 | 2.31E-01 | 426.7 | no |
| Tier 2/  Gloves | 5 | 0.05 | 2.17E-03 | 4.33 | yes |
| Application – Brushing and rolling/ [2.2.3.] | Tier 1 | 5 | 0.05 | 8.38E-03 | 16.77 | yes |
| Tier 2/  Gloves | 5 | 0.05 | 3.25E-03 | 6.50 | yes |
| Post-application – Washing out of a brush/ [2.3.] | Tier 1 | 5 | 0.05 | 7.55E-03 | 3.78 | yes |
| Sawing and sanding treated wood/ [4.1.1.] | Tier 1 | 5 | 0.05 | 3.28E-04 | 0.66 | yes |

**Combined scenarios**

In the following table, the results are provided for **propiconazole**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Borehole filling without pressure**  Scenarios [2.1.; 2.2.1.] | Tier 1/  None | 3.6 | 0.04 | 1.15E-02 | 28.7 | yes |
| Tier 2/gloves | 3.6 | 0.04 | 6.42E-04 | 1.6 | yes |
| **Borehole pressure injection**  Scenarios [2.1.; 2.2.2.] | Tier 1/  None | 3.6 | 0.04 | 3.71E-01 | 926.6 | no |
| Tier 2/  Gloves | 3.6 | 0.04 | 3.79E-03 | 9.5 | yes |
| **Brushing/**  **roller**  Scenarios [2.1.; 2.2.2.; 2.3.] | Tier 1/  None | 3.6 | 0.04 | 2.08E-02 | 52.0 | yes |
| Tier 2/  Gloves during M&L and appl. phase | 3.6 | 0.04 | 5.72E-03 | 15.8 | yes |
| **Borehole filling without pressure and brushing/ rolling**  Scenarios [2.1.; 2.2.1.; 2.2.3.; 2.3.]] | Tier 1/  No PPE | 3.6 | 0.04 | 2.65E-02 | 66.2 | yes |
| Tier 2/  Gloves | 3.6 | 0.04 | 6.34E-03 | 15.8 | yes |
| **Borehole pressure injection and brushing/ rolling**  Scenarios [2.1.; 2.2.2.; 2.2.3.; 2.3.]] | Tier 1/  None | 3.6 | 0.04 | 3.86E-01 | 964.6 | no |
| Tier 2/  Gloves | 3.6 | 0.04 | 1.01E-02 | 25.1 | yes |

In the following table, the results are provided for **IPBC**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Borehole filling without pressure**  Scenarios [2.1.; 2.2.1.] | Tier 1/  None | 20 | 0.2 | 1.41E-01 | 70.4 | yes |
| Tier 2/  Gloves | 20 | 0.2 | 7.75E-03 | 3.9 | yes |
| **Borehole pressure injection**  Scenarios [2.1.; 2.2.2.] | Tier 1/  None | 20 | 0.2 | 4.55 | 2275.48 | no |
| Tier 2/  Gloves | 20 | 0.2 | 4.58E-02 | 22.9 | yes |
| **Brushing/**  **roller**  Scenarios [2.1.; 2.2.2.; 2.3.] | Tier 1/  None | 20 | 0.2 | 2.52E-01 | 126.0 | no |
| Tier 2/  Gloves during M&L and appl. phase | 20 | 0.2 | 6.66E-02 | 37.1 | yes |
| **Borehole filling without pressure and brushing/ rolling**  Scenarios [2.1.; 2.2.1.; 2.2.3.; 2.3.]] | Tier 1/  No PPE | 20 | 0.2 | 3.23E-01 | 161.2 | no |
| Tier 2/  Gloves | 20 | 0.2 | 7.42E-02 | 37.1 | yes |
| **Borehole pressure injection and brushing/ rolling**  Scenarios [2.1.; 2.2.2.; 2.2.3.; 2.3.]] | Tier 1/  None | 20 | 0.2 | 4.73E+00 | 2366.3 | no |
| Tier 2/  Gloves | 20 | 0.2 | 1.19E-01 | 59.6 | yes |

In the following table, the results are provided for **permethrin**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Borehole filling without pressure**  Scenarios [2.1.; 2.2.1.] | Tier 1/  None | 5 | 0.05 | 6.71E-03 | 13.4 | yes |
| Tier 2/  Gloves | 5 | 0.05 | 3.73E-04 | 0.7 | yes |
| **Borehole pressure injection**  Scenarios [2.1.; 2.2.2.] | Tier 1/  None | 5 | 0.05 | 2.17E-01 | 4.33.5 | no |
| Tier 2/  Gloves | 5 | 0.05 | 2.21E-03 | 4.41 | yes |
| **Brushing/**  **roller**  Scenarios [2.1.; 2.2.2.; 2.3.] | Tier 1/  None | 5 | 0.05 | 1.21E-02 | 24.23 | yes |
| Tier 2/  Gloves during M&L and appl. phase | 5 | 0.05 | 3.29E-03 | 7.30 | yes |
| **Borehole filling without pressure and brushing/ rolling**  Scenarios [2.1.; 2.2.1.; 2.2.3.; 2.3.]] | Tier 1/  No PPE | 5 | 0.05 | 3.38E+00 | 6766.2 | no |
| Tier 2/  Gloves | 5 | 0.05 | 3.65E-03 | 7.3 | yes |
| **Borehole pressure injection and brushing/ rolling**  Scenarios [2.1.; 2.2.2.; 2.2.3.; 2.3.]] | Tier 1/  None | 5 | 0.05 | 3.59E+00 | 7185.6 | no |
| Tier 2/  Gloves | 5 | 0.05 | 5.81E-03 | 11.6 | yes |

**Local effects**

**Qualitative exposure and risk assessment**

With respect to local effects, the RTU product has a classification of the RTU product with Skin Sens. 1 (H317), Eye Irrit. 2 (H319), STOT RE 2 (H373), Asp. Tox. 1 (H304) and EUH066.

The qualitative exposure and risk assessment for local effects is performed based on the Guidance on the Biocidal Products Regulation, Vol III, Part B (2015) and is addressed in the following table (on next page).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Hazard** | | | **Exposure** | | | | | | | **Risk** |
| **Hazard category** | **Effects in terms of C&L** | **Additional relevant hazard information** | **PT** | **Who is exposed?** | **Tasks, uses, processes** | **Potential exposure route** | **Frequency and duration of potential exposure** | **Potential degree of exposure** | **Relevant RMM\* & PPE\*\*** | **Conclusion on risk** |
| Low | Asp. Tox. 1; H304 | - | 8 | Professionals | The RTU product Koranol Holzbau Grund containing propiconazole, IPBC and permethrin is used undiluted by professionals for wood preservation by borehole treatment, borehole injection and brushing and rolling (use # 4-7). | Skin  Eye  Inhalation (Larynx) | More than few hours  per day | Controlled exposure  with technical RMM, PPE and good ventilation  potential exposure only with technical RMM and PPE | Technical and organisational RMM adequate for the low and medium category are achievable:  + high degree of operational RMMs (easy maintenance, minimization of manual phases, regular cleaning of equipment and work area, good standard of general ventilation)  + high degree of organisational RMMs (permit to work procedures, trained workers, intensive supervision of workers for proper use of RMM, good standard of personal hygiene)  + Avoid breathing dust/fume/gas/mist/vapours/spray. (P261)  + professionals using appropriate PPE (protective gloves, protective clothing, eye/face protection) (P280)  + proper instructions for use | Acceptable:  + reversible effect (H319)  + installed RMM at place  + trained workers  + use of appropriate PPE |
| Low | EUH 066 | - |
| Low | Eye Irrit. 2; H319 | - |
| Medium | Skin Sens. 1; H317 | - |
| Low | STOT RE 2; H373 | - |

\* RMM: risk mitigation measures

\*\* PPE: personal protective equipment

**Conclusion**

The solvent-based RTU product Koranol Holzbau Grund containing propiconazole, IPBC permethrin and the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” is used by professionals for wood preservation by borehole treatment, borehole injection and brushing and rolling (use # 4-7).

In addition, the secondary exposure to professional workers during sawing and sanding of treated wood is considered.

Professional users are expected to follow a minimum of instructions. Appropriate PPE (gloves, coverall, eye/face protection) should be used for exposure control when the product is handled or applied.

Using the RTU product containing 0.45% propiconazole, 1.4% IPBC, 0.2% permethrin and 82.25% “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics” and considering the highest application rate of 350 mL/m2, the following risk characterisation is given:

Tier 2: Exposure considering PPE (Tier 2: gloves) during borehole filling without pressure by professionals results in 1.4%, 3.5% and 0.67% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 2: Exposure considering PPE (Tier 2: gloves (90% protection) during borehole pressure injection by professionals results in 9.3%, 22.5% and 4.3% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 2: Exposure considering PPE (Tier 2: gloves) during brushing and rolling by professionals results in 14.1%, 32.9% and 6.5% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Borehole injection should always be combined with a curative superficial treatment (brushing/rolling). The resulting exposure from the combined exposure to mixing, loading borehole injection (with and without pressure), brushing/ rolling and washing out a brush was calculated.

Tier 2: Exposure considering PPE (Tier 2: gloves) during combined borehole filling without pressure and brushing/ rolling by professionals results in 15.8%, 37.1% and 7.3% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 2: Exposure considering PPE (Tier 2: gloves (90% protection) during combined borehole pressure injection and brushing/ rolling by professionals results in 25.1%, 59.6% and 11.6% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

Tier 1: Secondary exposure without considering PPE during sawing and sanding of treated wood by professionals results in 1.6%, 0.5% and 0.7% of the respective AELs for propiconazole, IPBC and permethrin, respectively.

A combined exposure and risk assessment of primary exposure (borehole filling without pressure, borehole pressure injection and brushing/roller) and secondary exposure (sawing and sanding treated wood) is not considered to be relevant, since the workers cannot be expected to apply wood preservative and sawing treated wood at the same time on one working day.

With respect to local effects, coverall, gloves, and eye/face protection are to be used since the RTU product is classified as eye irritating and skin sensitizer.

In conclusion, the risk during borehole treatment or borehole injection in combination with brushing/rolling (use # 4-7) and during sawing/sanding treated wood by professionals is acceptable for the RTU product Koranol Holzbau Grund, if appropriate protective equipment (gloves, protective clothing and eye/face protection) is used during the individual application phases.

***Risk for non-professional users***

Not relevant. The product is not used by non-professional users.

***Risk for the general public***

**General remark:**

The results reflect the concentrations of 0.45%, 1.4% and 0.2% of propiconazole, IPBC and permethrin, respectively and the highest application rate of 350 mL/m2 of the RTU product.

**Systemic effects**

In the following table, the results are provided for **propiconazole**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Sawing and sanding treated wood**/ [4.1.2.] – acute scenario | Tier 1 | 30 | 0.3 | Adult: 4.01E-04 | 0.1 | yes |
| **Chewing wood off-cut** / [4.2.] – acute scenario | Tier 1 | 30 | 0.3 | Infant: 3.43E-02 | 11.5 | yes |
| **Playing on playground structure outdoors and mouthing** / [4.3.] – chronic scenario | Tier 1 | 3.6 | 0.04 | Infant: 9.73E-03 | 24.3 | yes |
| **Inhalation of volatilized residues** / [4.4.] – chronic scenario | Tier 1 | 3.6 | 0.04 | Infant: 5.31E-03  Child: 3.95E-03  Adult: 2.10E-03 | 13  9.9  5.2 | yes |

In the following table, the results are provided for **IPBC**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Sawing and sanding treated wood**/ [4.1.2.] – acute scenario | Tier 1 | 35 | 0.35 | Adult: 3.37E-04 | 0.1 | yes |
| **Chewing wood off-cut** / [4.2.] – acute scenario | Tier 1 | 35 | 0.35 | Infant: 1.07E-01 | 30.5 | yes |
| **Playing on playground structure outdoors and mouthing** / [4.3.] – chronic scenario | Tier 1 | 20 | 0.2 | Infant: 2.71E-02 | 13.6 | yes |
| **Inhalation of volatilized residues** / [4.4.] – chronic scenario | Tier 1 | 20 | 0.2 | Infant: 0.109  Child: 8.11E-02  Adult: 4.31E-02 | 55  41  22 | yes |

In the following table, the results are provided for **permethrin**.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task/**  **Scenario** | **Tier** | **Systemic NOAEL**  **mg/kg bw/d** | **AEL**  **mg/kg bw/d** | **Estimated uptake**  **mg/kg bw/d** | **Estimated uptake/ AEL**  **(%)** | **Acceptable**  **(yes/no)** |
| **Sawing and sanding treated wood**/ [4.1.2.] – acute scenario | Tier 1 | 59.43\* | 0.5 | Adult: 2.29E-04 | 0.046 | yes |
| **Chewing wood off-cut** / [4.2.] – acute scenario | Tier 1 | 59.43\* | 0.5 | Infant: 1.53E-02 | 3.05 | yes |
| **Playing on playground structure outdoors and mouthing** / [4.3.] – chronic scenario | Tier 1 | 5 | 0.05 | Infant: 4.51E-03 | 9.0 | yes |
| **Inhalation of volatilized residues** / [4.4.] – chronic scenario | Tier 1 | 5 | 0.05 | Infant: 2.34E-04  Child: 1.74E-04  Adult: 9.23E-05 | 0.47  0.35  0.18 | yes |

\*According to AR (PT8 – 2014), *“dividing the NOAEL value 59.43-mg/kg bw/day by an overall assessment factor of 100 derives a reference value of 0.59-mg/kg bw/day. However, this AELacute from an inhalation study enquires estimate of received dose with all the attendant uncertainties. The oral Ishmael and Litchfield gives a very similar AEL of 0.5 mg/kg bw/day Therefore, ARfD or AELacute reference value is set at of 0.5 mg/kg bw/day.”*

**Combined scenarios**

Not relevant

**Local effects**

With respect to local effects, the RTU product has a classification of the RTU product with Skin Sens. 1 (H317), Eye Irrit. 2 (H319), STOT RE 2 (H373), Asp. Tox. 1 (H304) and EUH066.

From secondary exposure EUH066 and Asp.Tox.1 (H304) are not expected as both effects are attributed to the SoC “hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics”, which is assumed to be completely evaporated when the wood is dried. The effects of eye irrit.2 (H319) and STOT RE 2 (H373) can also be excluded as eye or inhalation exposure is expected to be negligible after treated wood are dried.

Skin sens. 1 (H317) assigned from IPBC (1.4% in the product) may be possible from secondary exposure for the general public.

* **Sawing and sanding treated wood:** The concentrations of the active substance and SoC to which dermal contact occurs is reduced by the transfer coefficient of 2 % for dried fluids on rough sawn wood.
* **Chewing wood off-cut:** The infant may be exposed to IPBC while chewing treated wood off-cut. Assuming chewing for 1 min, and the saliva production of 1.5 mL/min (CAR Bardap), 10% x 8.549 mg IPBC (contained in a wood off-cut) ÷ 1.5 mL = 0.5699 mg IPBC may be present per mL saliva (i.e. 0.05% w/v). As the concentration of IPBC in saliva will be below the general cut-off value for skin sensitisation effect (1%), skin sensitisation is not expected to occur for the infant.
* **Playing on playground structure outdoors and mouthing:** the concentrations of the active substances and the SoC to which dermal contact occurs are reduced by the transfer coefficient of 2 % for dried fluids on rough sawn wood.
* **Inhalation of volatilized residues:** not a relevant exposure route for skin sensitisation.

**Conclusion**

The solvent-based RTU product Koranol Holzbau Grund containing propiconazole, IPBC and permethrin is used by industrials, and professionals for wood preservation (use # 1-6).

The general public can be secondarily exposed via the oral, dermal and inhalation routes. The results of the exposure estimation are all below 31% of the respective AELs for propiconazole, IPBC and permethrin, respectively. A combined assessment is not considered to be relevant for secondary exposure.

In all general public exposure scenarios, no exceedance of the corresponding reference values for propiconazole, IPBC and permethrin was observed and, thus, the risk is acceptable.

***Risk for consumers via residues in food***

Not relevant.

Koranol Holzbau Grund is not intended for applications where contact with food, feed, or livestocks may arise. Considering the RMM as included in the general risk mitigation section of the authorised use(s): “ Do not use on wood which may come in direct contact with food, feeding stuff and livestock animals.” Consequently, risk for consumers via residues in food is not relevant.

***Risk characterisation from combined exposure to several active substances or substances of concern within a biocidal product***

According to Guidance for Human Health Risk Assessement, Volume III, Part B, chapter 4.4.1 - a tiered approach is provided:

Preliminary Tier: There is no indication of synergistic effects between any of the components.

For **Tier 1**, acceptable risk for propiconazole, IPBC and permethrin is demonstrated for all individual scenarios as provided in chapter 2.2.6.3 “Risk characterisation for human health”.

**Tier 2:** In the following table, the sum of the %AEL for each active substance, propiconazole, IPBC and permethrin, is provided.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **% AEL**  **propiconazole** | **% AEL**  **IPBC** | **% AEL**  **permethrin** | **Sum of % AEL (%)** | **Acceptable**  **(yes/no)** |
| Automated dipping by industrials – Tier 2 (gloves and coverall)  Scenarios [1.1, 1.2.1, 1.3] | 8.0 | 19.4 | 3.7 | 31.1 | yes |
| Manual dipping by industrials – Tier 2 (gloves and coverall)  Scenario [1.2.2] | 18.7 | 45.8 | 8.7 | 73.2 | yes |
| Flow coating (deluging) by industrials – Tier 2 (gloves and impermeable coverall)  Scenario [1.2.3] | 23.7 | 57.9 | 11.1 | 92.7 | yes |
| Borehole filling without pressure by professionals –  Tier 2 (gloves)  Scenarios [2.1, 2.2.1] | 1.6 | 3.9 | 0.7 | 6.2 | yes |
| Borehole pressure injection by professionals – Tier 2 (gloves)  Scenarios [2.1, 2.2.2] | 9.5 | 22.9 | 4.4 | 36.8 | yes |
| Brushing/  roller by professionals – Tier 2 (gloves during M&L and application)  Scenarios [2.1, 2.2.3, 2.3] | 15.8 | 37.1 | 7.3 | 60.2 | yes |
| Borehole filling without pressure and brushing/ rolling  Scenarios [2.1.; 2.2.1.; 2.2.3.; 2.3.]] | 15.8 | 37.1 | 7.3 | 60.2 | yes |
| Borehole pressure injection and brushing/ rolling  Scenarios [2.1.; 2.2.2.; 2.2.3.; 2.3.]] | 25.1 | 59.6 | 11.6 | 96.3 | yes |
| Sawing and sanding treated wood by professionals  Scenario [4.1.1] | 1.6 | 0.5 | 0.7 | 2.7 | yes |
| Sawing and sanding treated wood by general public  Scenario [4.1.2] | 0.1 | 0.1 | 0.1 | 0.3 | yes |
| Chewing wood off-cut  Scenario [4.2] | 11.5 | 30.5 | 3.05 | 45 | yes |
| Playing on playground structure outdoors and mouthing: infant  Scenario [4.3] | 24.3 | 13.6 | 9.0 | 46.9 | yes |
| Inhalation of volatilized residues: infant, child, adult  Scenario [4.4] | 13  9.9  5.2 | 55  41  22 | 0.47  0.35  0.18 | 68  51  27 | yes |

As it can be seen from these calculations, the sum of the % AEL per exposure scenario is below 100%.

Therefore, the risk of combined toxicity is acceptable.

Regarding the combined toxicity, when using the adjusted liver-specific AELlong-term of 0.35 mg/kg bw/d for IPBC for Tier 3 combined risk assessment, no impermeable coveralls are warranted for deludge treatment as presented below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenarios combined** | **% AEL**  **propiconazole** | **% AEL**  **IPBC\*** | **% AEL**  **permethrin** | **Sum of % AEL (%)** | **Acceptable**  **(yes/no)** |
| Flow coating (deluging) by industrials – Tier 2 (gloves and coverall)  Scenario [1.2.3] | 18.7 | 52.3 | 4.4 | 75.4 | yes |

*\* Based on an adjusted liver-specific AELlong-term of 0.35 mg/kg bw/d for IPBC*

eCa note: initially, calculations were made using an impermeable coverall for deluging treatment (scenario 1.2.3) since the combined exposure to all three active substances did not result in an acceptable exposure as the AEL was exceeded when using gloves and a coated coverall. However, based on the commenting phase, it was suggested by DE to perform a tier 3 assessment for combined toxicology using an adjusted liver-specific AELlong-term of 0.35 mg/kg bw/d for IPBC. When using the adjusted liver-specific AELlong-term of 0.35 mg/kg bw/d for IPBC for Tier 3 combined risk assessment, no impermeable coveralls are warranted for deludge treatment. Also when looking at the single substances, for IBPC using the AELlong term of 0.2 mg/kg bw/day, this results in an AEL value of 91.5% which is thus below the AEL when wearing gloves and a coated coverall. For propiconazole and permethrin a %AEL of 18.7% and 4.4%, respectively, are derived for exposure during deluging when wearing gloves and a coated coverall.

In addition, considering the technical RMM "Timber enters through the front side and the treated timber comes out dripping wet through the back side. After the flooding process treated timber is automatically transferred through a drying channel, where the wooden articles are dried with a warm air stream, before handled manually and before the top-coat warm air stream is applied.” restricts the deluge system this will further reduce exposure significantly. However, this effect was not taken into account in the calculation made as a worst case approach.

Thus, a standard coverall (90% protection) additional to gloves as PPE is sufficient to ensure safe use either for exposure to the single substances during deluging as well as for combined exposure assessment to all three active substances. In addition, the technical RMM restricting the deluge system featuring an automatic transfer system through a drying tunnel is included in the instructions for use,.

### Risk assessment for animal health

Not relevant.

Koranol Holzbau Grund is not intended for applications where contact with feed or livestocks may arise, considering the RMM as included in the general risk mitigation section of the authorised use(s): “ Do not use on wood which may come in direct contact with food, feeding stuff and livestock animals.”. Considering uses #6 and #7, the Koranol Holzbau Grund is to be applied indoor and outdoor for extensive curative treatment of timbered houses, wooden roof frames and log house constructions. Depending on the local surroundings, an access of pets and cats in particular to these sites cannot be excluded.

In order to avoid accidental poisoning, the following RMM is included in the general risk mitigation section of the authorised use(s): “Keep children and pets away from treated structures until dried” and “Avoid prolonged contact of pets, specifically cats, with treated structures.”. Consequently, a risk assessment for animal health is not relevant.

### Risk assessment for the environment

#### Effects assessment on the environment

**Permethrin**

The PNEC values are deduced from the active substance data provided in the list of endpoints of the PT8 Permethrin Assessment Report (April 2014).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PNECwater and PNECsediment**  **Permethrin, DCVA, PBA** | | | | | |
| **Permethrin1** | | **DCVA2** | | **PBA3** | |
| **PNECwater**  **[µg/L]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[mg/L]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[mg/L]** | **PNECsed**  **[mg/kgwwt]** |
| 0.00047 | 2.17E-04 | 0.015 | 0.012 | 0.010 | 0.009 |

PNECwater:

1 Permethrin: lowest NOEC value from the aquatic invertebrate endpoints of 0.0047 µg/l (AF = 10)

2 DCVA: EC50 value from the fish study of > 14.7 mg/l (AF = 1000)

3 PBA: EC50 value from the algae study of > 19 mg/l (AF = 1000)

PNECsed:

1 Permethrin: NOEC value from the 5-d *Chironomus riparius* study of 0.01 mg/kg dwt (AF = 100)

2 DCVA 3 PBA: the PNEC values were calculated using the equilibrium partitioning method

|  |  |  |
| --- | --- | --- |
| **PNECsoil**  **Permethrin, DCVA, PBA** | | |
| **Permethrin1**  **[mg/kgwwt]** | **DCVA2**  **[mg/kgwwt]** | **PBA3**  **[mg/kgwwt]** |
| 0.175 | 4.6 | 1.44 |

1 The IE (RMS for permethrin) evaluation of the permethrin confirmatory data was discussed at the BPC Meeting in early March 2017. IE can inform the CG members that an ENV WG e-consultation was requested by BPC Members during the BPC meeting in March, regarding the PNECsoil. The e-consultation concluded on the 13th March.

It was agreed that the conclusions of this e-consultation could be announced at CG-22 in the event of a clear majority opinion. The opinions received from MSs in the e-consultation provided a clear majority opinion in relation to the proposed PNECsoil.

The MSs were in favour of using an AF of 50 and deriving the PNECsoil for permethrin on the soil micro-organism study.  The new PNECsoil is 0.198 mg/kg dwt, corresponding to 0.175 mg/kg wwt.

2 DCVA: NOEC value from the *Hypoaspis aculeifer* study of 526 mg/kg/dwt (AF = 100)

3 PBA: FPBA NOEC value from the *Hypoaspis aculeifer* study of 495 mg/kg/dwt (AF = 300)

|  |
| --- |
| **PNECSTP**  **Permethrin**  **[mg/L]** |
| 0.00495 |

1 Permethrin:

2 DCVA 3 PBA: not relevant

Secondary poisoning risk assessment:

PNECbird = >16.7 mg a.s./kg food

PNECsmall mammal = 120 mg a.s./kg food

**Propiconazole**

The PNEC values for propiconazole are deduced from the propiconazole PT7 AR (January 2015).

|  |  |  |
| --- | --- | --- |
| **PNECwater and PNECsediment**  **Propiconazole** | | **PNECSTP**  **Propiconazole** |
| **PNECwater**  **[µg/L]** | **PNECsed**  **[mg/kgwwt]** | **PNECSTP**  **[mg/L]** |
| 6.8 | 0.054 | 100 |

|  |  |
| --- | --- |
| **PNECsoil** | |
| **Propiconazole**  **[mg/kgwwt]** | **1,2,4-Triazole1**  **[mg/kgwwt]** |
| 0.100 | 0.0082 |

1 1,2,3-Triazole: NOEC value for soil microorganisms as provided in the propiconazole PT7 PAR (2015) of 0.82 mg/kgwwt (AF =100)

Secondary poisoning risk assessment:

The PNECoral of 3.33 mg a.i./kg food was derived from a NOAEC of 100 mg a.i./kg food obtained from a two generation reproduction study with rats and considering an assessment factor of 30. This PNECoral was used for the risk characterisation.

**IPBC**

The PNEC values for IPBC and its major metabolite PBC are deduced from the IPBC PT13 AR (January 2015).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PNECwater and PNECsediment**  **IPBC and PBC** | | | | **PNECSTP** |
| **IPBC** | | **PBC** | | **IPBC** |
| **PNECwater**  **[µg/L]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[µg/L]** | **PNECsed**  **[mg/kgwwt]** | **PNECSTP**  **[mg/L]** |
| 0.46 | 0.00339 | 41.30 | 0.210 | 0.44 |

|  |  |
| --- | --- |
| **PNECsoil**  **IPBC and PBC** | |
| **IPBC**  **[mg/kgwwt]** | **PBC**  **[mg/kgwwt]** |
| 0.004 | 0.149 |

***Information relating to the ecotoxicity of the biocidal product which is sufficient to enable a decision to be made concerning the classification of the product is required***

The biocidal product Koranol Holzbau Grund is a ready-to-use (RTU) solvent-based formulation containing propiconazole, IPBC and permethrin. The product has not been tested for toxicity on aquatic and terrestrial organisms.

According to the "Guidance on information requirements (Version 1.1 November 2014), testing on the product/mixture does not need to be performed if there are valid data available on each of the components in the mixture sufficient to allow classification according to the rules laid down in Directive 1999/45/EC (DPD) and Regulation (EC) No 1272/2008 (CLP), and if synergistic effects between any of the components are not expected.

For all components of the biocidal product valid data are available through state-of-the art safety data sheets. The relevant components of the product which are classified with respect to the environment are the active substances propiconazole, IPBC and permethrin. None of the other ingredients are classified as being hazardous to the environment. (The exact composition of the BPF is confidential and is provided in the IUCLID file as well as in the confidential Annex of the PAR.)

Propiconazole, IPBC and permethrin are classified with Aquatic Acute 1; H400 and Aquatic Chronic 1; H410. The M-Factors for the substances are as follows:

Propiconazole: M-Factor (Acute and Chronic) = 1

IPBC: M-Factor (Chronic) = 1; M-Factor (Acute) = 10

Permethrin: M-Factor (Chronic) = 10000; M-Factor (Acute) = 100

Taking into account the highest concentrations of 0.45% propiconazole, 1.4% IPBC and 0.2% permethrin and their corresponding M-Factors, permethrin is considered the decisive substance for the classification of environmental hazards. Synergistic effects between the components are not expected. Consequently, classification of the mixtures can be made according to the rules laid down in Regulation (EC) No 1272/2008 (CLP) and testing of the components and/or of the biocidal product itself is not necessary.

Applying the provisions of the CLP Regulation and considering the concentration of 0.2% of permethrin with an M-Factor of 10000 for chronic hazard and an M-Factor of 100 for acute hazard, the biocidal product Koranol Holzbau Grund needs to be classified with Aquatic Acute 1 (H400) and Aquatic Chronic 1 (H410).

***Further Ecotoxicological studies***

Further ecotoxicological studies are not required.

***Assessment for endocrine disrupting properties***

As discussed in Section 2.2.6.1, the Commission Delegated Regulation (EU) 2017/2100 specifying the scientific criteria for the determination of endocrine-disrupting properties (ED criteria) under Regulation (EU) No 528/2012 (BPR) establishes that the ED criteria become applicable by 7 June 2018 for biocides (<https://www.ctgb.nl/onderwerpen/hormoon-verstoorders>).

No further ecotoxicological studies are available for the product and it was not tested for potential endocrine disruption properties. Koranol Holzbau Grund contains the active substances propiconazole, IPBC and permethrin and various co-formulants (see confidential annex).

For the active substances, no ED assessment is required because for active substances which have been approved, the EU assessment should be followed. As discussed in the Assessment Report for propiconazole (January 2015), this active substance is listed in the document of EU Commission on endocrine disrupting chemicals (COMMISSION STAFF WORKING DOCUMENT on implementation of the Community Strategy for Endocrine Disrupters - a range of substances suspected of interfering with the hormone systems of humans and wildlife (COM (1999) 706)) in Table 4: Substances classified as HPV and/or persistent and/or exposure expected in humans and wildlife, with insufficient data. Moreover, this active substance is also mentioned in CA-80, September 2018 (CA document on the subject: Implementation of scientific criteria to determine the endocrine-disrupting properties of already approved active substances (CA-March18-Doc.7.5.a-Final - EDs approved active substances)). An early review may be triggered (decision taken later), because this active substance is identified as possible ED and will not be subject to a renewal process under the BPR before the end of 2020. Therefore, for the EU dossier more data on endocrine effects of propiconazole is required and the EU discussions and updates should be followed. The Assessment Report for IPBC (2013) states that this active substance is not included in the EU list of potential endocrine disruptors (COM DG ENV, 2000). For permethrin, considering the data available in the EU dossier (Assessment Report, 2014), there is no evidence of endocrine disruption potential in the human health or ecotoxicological data presented. Hence, identification of the active substances as having ED properties should be re-considered following the outcome of the EU discussions on the active substances.

For the co-formulants a screening was performed by consulting:

• ECHA data for identification of ED and PBT, under REACH or BPR or CLP

• The United States EPA

• The United Nations Environment Program (July 2017) Programme(http://wedocs.unep.org/bitstream/handle/20.500.11822/25634/edc\_report2.pdf?sequence=1&isAllowed=y and https://wedocs.unep.org/bitstream/handle/20.500.11822/25635/edc\_report2\_factsheet.pdf?sequence=1&isAllowed=y)

None of the co-formulants triggered an alert for potential endocrine disruption properties. Hence, no further ED assessments are required for Koranol Holzbau Grund.

***Effects on any other specific, non-target organisms (flora and fauna) believed to be at risk (ADS)***

No studies were performed or available on the ecotoxicology of the biocidal product Koranol Holzbau Grund.

For all components of the product Koranol Holzbau Grund, valid data are available through state-of-the art safety data sheets. The decisive component of the product for the classification of environmental hazards is the active substance permethrin.

For the performance of the environmental exposure and risk assessment only data on the active substances permethrin, IPBC and propiconazole are required. The available data are sufficient to perform the exposure and risk assessments (see the respective chapter in the draft PAR attached in Section 13).

Further studies are therefore not required

***Supervised trials to assess risks to non-target organisms under field conditions***

According to the "Guidance on information requirements (Version 1.1 November 2014)", higher tier field studies may be required if a habitat such as a water body, wetland, forest or field is treated. This is not the intended use for PT8 products.

***Studies on acceptance by ingestion of the biocidal product by any non-target organisms thought to be at risk***

Not relevant for PT8 products. The products are not applied in form of a bait or granule.

***Secondary ecological effect e.g. when a large proportion of a specific habitat type is treated (ADS)***

Not relevant for PT8 products.

***Foreseeable routes of entry into the environment on the basis of the use envisaged***

Foreseeable routes of entry of the active substances IPBC, permethrin and propiconazole into the environment are described in the PAR on the basis of the OECD ESD no. 2 (2013): “Revised Emission Scenario Document for Wood Preservatives” (PT 8). This ESD adequately reflects the use of the product in PT 8. The information on how the active substances and their metabolites are released into the environment and the calculated PEC-values in the different compartments are provided in the above mentioned document. Please refer to PAR Chapter 2.2.8 “Risk assessment for the environment” for detailed information (attached in IUCLID-Section 13).

The leaching behaviour of IPBC, permethrin and propiconazole from treated wood exposed to rain water was investigated in two leaching studies. The studies are described in IUCLID-Section 10.3 "leaching behaviour" (xxxxxxx).

***Further studies on fate and behaviour in the environment (ADS)***

According to the “Guidance on the Biocidal Products Regulation, Volume IV: Environment, Part A (2014)” further studies may be required for “products that are used outside, with direct emission to soil, water or surfaces, the components in the product may influence the fate and behaviour (and ecotoxicity) of the active substance.”

In the recipe of Koranol Holzbau Grund no other substance was identified which meet the criteria for doing an environmental RA on the basis of their intrinsic properties except the active substances.

The product Koranol Holzbau Grund is used in a manner which does not result in a direct release into the aquatic compartment. The composition of the "mixture" of components finally reaching the aquatic compartment is different from the composition of the product itself. The environmental exposure and risk assessments are performed on the active substances IPBC, permethrin and propiconazole. The available data on the active substances are sufficient for the environmental exposure assessment (see the respective chapter in the draft PAR attached in Section 13). Additional data on fate and behaviour in the environment are not required.

***Leaching behaviour (ADS)***

Two semi-field leaching tests (*xxxx*) according to the guideline NT BUILD 509 were performed for the product Koranol Holzbau Grund. The product was applied by surface treatment (brushing) with two different application rates (100 and 250 ml product/m²). 28 test specimens of *Pinus sylvestrus* (100% sapwood) were sawn (760 × 100 × 25 mm) and kiln-dried at 60°C max. Number of knots and rings, and densities were in the acceptable range. Wood (21 samples) was preserved with Koranol Holzbau Grund by brushing and subsequently topcoated with a transparent alkyd-based paint (Koranol MSL). End grains were in accordance to the guideline sealed with an silicon-based coating.

Three boards were composed from 7 preserved samples each (total surface 0.8155 m²), a fourth board was composed from unpreserved wood (blanc). The boards were vertically placed outdoors with the treated surface faced south. The test was conducted in Eberswalde, Germany, and started 30th of September 2014. Leachate was collect via stainless steel gutters in coated glass flasks protected from direct sun light. Leachates were collected after each major rain event and stored at -18°C until analysis. Rainfall was measured by an on-site weather station. The test lasted 365 consecutive days during which 553 mm of rainfall was registered. Five samples were taken during the test.

IPBC and its metabolite PBC, and propiconazole were analysed using LC-MS/MS without clean up. For permethrin, samples were extracted with dichloromethane, filtered over sodium sulphate, evaporated, transferred to n-hexane, and eventually analysed with GC-MS/MS. Calibration standards and QA-samples were included. The limits of quantification were 1 µg/L for propiconazole, 2 µg/L for IPBC and PBC, and 0.01 µg/L for permethrin. MS/MS responses were linear with the concentration in the calibration standards (r²≥0.9992). The use of recoveries and internal standards were however not reported.

IPBC was not detected (below 2 µg/L) in almost all samples as it has been transformed into PBC. This metabolites followed a typical leaching reaching a clear plateau after about 500 mm of rainfall. A plateau was however not reached for propiconazole and permethrin, although leaching rates decreased significantly. The report did not propose values for Qleach1, Qleach2, and Qleach3. The amount of active substance leached after the three assessment periods was therefore derived by the eCA by fitting an logarithm curve (Qleach(mm)=a×ln(mm)+b) through the data and calculating the value at 3500 mm. Results are summarised below. Qleach1 is based on the measured value. The extrapolated values for Qleach2 and Qleach3 were all below 1% of the amount initially applied.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **regression** | | | **Qleach (mg/m²)** | | | |
| **a** | **b** | **r²** | **TIME11** | **TIME2** | **TIME32** | |
|  | | | | | | Brushing | Dipping / Spraying |
| 250 ml/m² | | | | | | | |
| IPBC | could not fit, below LOD | | | <LOD | | | |
| PBC | 1.5299 | -4.8553 | 0.9042 | 0.86 | 5.17 | 7.63 | 9.31 |
| propiconazole | 0.2105 | -0.7812 | 0.9968 | 0.058 | 0.598 | 0.937 | 1.17 |
| permethrin | 0.0011 | -0.0038 | 0.9224 | 3.14E-043 | 3.41E-03 | 5.18E-03 | 6.39E-03 |
| 100 ml/m² | | | | | | | |
| IPBC | could not fit, below LOD | | | <LOD | | | |
| PBC | 0.3109 | -0.9474 | 0.8985 | 0.211 | 1.09 | 1.59 | 1.93 |
| propiconazole | 0.0531 | -0.1861 | 0.9856 | 0.022 | 0.162 | 0.247 | 0.306 |
| Permethrin | 0.0017 | -0.0072 | 0.8939 | 1.53E-04 | 3.94E-03 | 6.67E-03 | 8.54E-03 |

1 TIME1 is the measured value after 57 mm of rainfall.

2 Product is applied by brushing, spraying, or dipping. The brushing TIME3 value is based on a service life of 1825 days, dipping and spraying is based on a service life of 5475 days.

3 The value of 6.58E-04 was used in the Risk assessment, whilst the value should be 3.14E-04.

| **Cumulative amount of leaching applied in the risk assessment (mg ai/m²)** | | | | |
| --- | --- | --- | --- | --- |
|  | **IPBCa** | **PBC** | **propiconazole** | **permethrin** |
| 100 ml product/m² | | | | |
| Qleach1 (after 30 days) b | - | 0.211 | 0.022 | 1.53E-04 |
| Qleach2 (after 365 days) | - | 1.09 | 0.162 | 3.94E-03 |
| Qleach3 (1825 days, brushing/rolling) | - | 1.59 | 0.247 | 6.67E-03 |
| Qleach3 (5475 days, dipping) | - | 1.93 | 0.306 | 8.54E-03 |
| 250 ml product/m² | | | | |
| Qleach1 (after 30 days) b | - | 0.860 | 0.058 | 3.14E-04 |
| Qleach2 (after 365 days) | - | 5.17 | 0.598 | 3.41E-03 |
| Qleach3 (1825 days, brushing/rolling) | - | 7.63 | 0.937 | 5.18E-03 |
| Qleach3 (5475 days, dipping) | - | 9.31 | 1.17 | 6.39E-03 |

a IPBC is completely transferred into PBC;

b Qleach1 is the measured value after 57 mm of rainfall.

***Testing for distribution and dissipation in soil (ADS)***

According to the “Guidance on the Biocidal Products Regulation, Volume IV: Environment, Part A (2014)” further studies may be required “if there are indications that other components in the product influence distribution and degradation characteristics”.

The composition of the product and the application techniques for this product are not suspected to influence the properties of the active substance in such a way that may alter the conclusions of the environmental risk characterisation.

The environmental exposure and risk assessments, which are based on the data set of the active substance, do not require the performance of further studies. The PEC/PNEC values for the respective compartments are below 1.

***Testing for distribution and dissipation in water and sediment (ADS)***

The environmental exposure and risk assessments, which are based on the data set of the active substance, do not require the performance of further studies. The PEC/PNEC values for the respective compartments are below 1.

***Testing for distribution and dissipation in air (ADS)***

Due to the low vapour pressures of IPBC (4.5 x 10-3 Pa at 25°C), Permethrin (2.155 x 10-6 Pa at 20°C) and Propiconazole (5.6 x 10-5 Pa at 25°C) the emission to air is negligible and consequently not relevant.

***If the biocidal product is to be sprayed near to surface waters then an overspray study may be required to assess risks to aquatic organisms or plants under field conditions (ADS)***

The product Koranol Holzbau Grund is not intended to be applied by spraying near surface water.

***If the biocidal product is to be sprayed outside or if potential for large scale formation of dust is given then data on overspray behaviour may be required to assess risks to bees and non-target arthropods under field conditions (ADS)***

The product Koranol Holzbau Grund is not foreseen for an in-situ spray application. Data on overspray behaviour are therefore not required.

#### Exposure assessment

**General information**

|  |  |
| --- | --- |
| Assessed PT | PT 8 |
| Assessed scenarios | Application of the PT8 RTU solvent based product  Scenario 1: Automated dipping (industrially)  Scenario 2: Manual dipping (industrially)  Scenario 3: Flow coating (deluging) by industrials  Scenario 4: Borehole and borehole pressure injection by professionals  Scenario 5: Brushing and rolling by professionals/non-professionals |
| ESD(s) used | Emission Scenario Document for Product Type 8:OECD SERIES ON EMISSION SCENARIO DOCUMENTS  Number 2; Revised Emission Scenario Document for Wood Preservatives (27 September 2013); ENV/JM/MONO(2013)21 |
| Approach | Scenario 1: Average consumption, service life of 5475 days  Scenario 2,3,4: no scenario available - covered by scenario 1 (automated dipping)  Scenario 5: Average consumption, service life of 1825 days and 5% lost during application  Calculations are made for 250 mL product/m² by applying the following scenarios:   * Noise barrier (emission to the STP) * Bridge over pond (direct emission to surface water); * House (direct emission to soil).   Emissions during industrial application and storage of preserved wood are not considered as emission to the environment is limited by valid risk mitigation measures. Emission during in-situ brushing is considered. Although the SPC also recommends an application rate of 350 mL/m² and the combined use of borehole treatment with brushing/rolling, this was not considered as its mainly concerns curative treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling. It is considered that the risk for incidental treatments is sufficiently covered by preventive treatments.  Emission is calculated for the relevant use class 3 (wood permanently exposed to weather) scenarios:   * IPBC and its metabolite PBC. IPBC is only considered for spillage during treatment. Considering that the submitted leaching tests demonstrated that IPBC is completely transformed into PBC, only the latter is considered for the service life phase; * Permethrin and its metabolites DCVA and PBA; * Propiconazole and its metabolite 1,2,4-triazole. The metabolite is only considered in soils and groundwater.   Other scenarios are not considered as use class 4 (wood directly exposed to water or soils) is not notified. No calculations are made for use class 1 and 2 (indoor uses shielded of from weather) as emission during service life is negligible and sufficiently covered by use class 3. |
| Distribution in the environment | Calculated based on ECHA-Guidance (2015) BPR, Vol. IV, ENV – Part B. |
| Groundwater simulation | The leaching to groundwater was simulated with the model FOCUS PEARL 4.4.4. The groundwater assessment included the applied methodology is provided in a separate report in Annex 3.2: Appendix 22 |
| Confidential Annexes | No |
| Life cycle steps assessed | Scenario 1-5:  Production: No  Formulation: No  Scenario 1 and 5:  Use: Yes  Service life of the treated articles: Yes  Scenario 2,3,4: covered by scenario 1 |
| Remarks | The calculation sheets for the emission estimation are attached in Annex 3.2; Appendix 1 & 2. |

***Emission estimation***

Two scenarios have been calculated. Scenario 1 that covers scenarios 2, 3, and 4 as well concerns wood that is industrially preserved. Because emission during application and storage is negligible due to risk mitigation measures, application and storage is not assessed. Scenario 5 concerns application by brushing. Here, the product may be applied in-situ and therefore the application phase was included. Only the parameters for amateurs are applied as this concern worst-case. Considering that IPBC will leach out as PBC, this active was only assessed for the application phase.

**Scenario 1: Automated dipping by industrials**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input parameters for calculating the local emission** | | | | |
| **Input** | **Value** | | **Unit** | **Remarks** |
| ***Scenario 1: Application (250 mL/m²)*** | | | | |
| Application rate of biocidal product | |  |  | Please refer to chapter 2.1.4 Authorised use(s) where the application rates are mentioned. |
| Concentration of active substances in the product | | | | |
| IPBC | | 1.4 | % [w/w] | S |
| Permethrin | | 0.2 | % [w/w] | S |
| Propiconazole | | 0.45 | % [w/w] | S |
| ***Scenario 1: Service life (250 mL/m²)*** | | | | |
| Duration of the initial assessment  period (Time 1) | 30 | | d | OECD ESD PT8 (2013) |
| Duration of the second assessment  period (Time 2) | 365 | | d |  |
| Duration of the longer assessment period (Time 3) | 5475 | | d | OECD ESD PT8 (2013) |
| Cumulative leaching over initial assessment period (Time 1) | See section 2.2.8.1 ‘Leaching behaviour’ | | | |
| Cumulative leaching after one year assessment period (Time 2) |
| Cumulative leaching over the whole service life (Time 3) |

**Scenario 5: Brushing/roller by professionals**

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters for calculating the local emission** | | | |
| **Input** | **Value** | **Unit** | **Remarks** |
| Application rate of biocidal product | 250 | mL/m² | Please refer to chapter 2.1.4 Authorised use(s) where the application rates are mentioned. |
| Concentration of active substances in the product | | | |
| IPBC | 14 | g/kg | S |
| Permethrin | 2 | g/kg | S |
| Propiconazole | 4.5 | g/kg | S |
| ***Scenario 5: Service life (250 mL/m²)*** | | | |
| Duration of the initial assessment  period (Time 1) | 30 | d | OECD ESD PT8 (2013) |
| Duration of the second assessment  period (Time 2) | 365 | d |  |
| Duration of the longer assessment period (Time 3) | 1825 | d | OECD ESD PT8 (2013) |
| Cumulative leaching over initial assessment period (Time 1) | See section 2.2.8.1 ‘Leaching behaviour’ | | |
| Cumulative leaching after one year assessment period (Time 2) |
| Cumulative leaching over the whole service life (Time 3) |

Please note that the application rates are not corrected for density when converted from ml/m2 to g/m2, but are based on a worst-case density of 1 kg/L.

The resulting daily emissions for scenarios 1 and 5 are summarised below.

Calculations for Scenario 1: Automated dipping by industrials

The emission estimation for the application was performed with the application rate of 250 mL/m² for use class 3. The calculation for service life is based on the results of semi-field leaching studies according to the NT Build 509 performed with the application rates mentioned before. Daily emission as calculated according to the ESD is summarised below. Note that the leaching rates for TIME2 and TIME3 have been corrected for the amount already leached during the previous period. This is explained in more detail elsewhere.

| **Resulting local emission to relevant environmental compartments** | | |
| --- | --- | --- |
| **Compartment** | **Local emission (Elocalcompartment)**  **[kg/d]** | **Remarks** |
| ***Scenario 1: Service life (250 mL/m²)*** | | |
| *PBC (metabolite of IPBC)* | | |
| STP (noise barrier) | 6.02E-05 | wood recently preserved |
| 2.70E-05 | wood preserved last year |
| 1.70E-06 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 2.87E-07 | 0-30 days (Time1) |
| 1.29E-07 | 30-365d (Time 2) |
| 8.10E-09 | 365d - end of service life (Time 3) |
| Soil (house) | 3.58E-06 | 0-30 days (Time1) |
| 1.61E-06 | 30-365d (Time 2) |
| 1.01E-07 | 365d - end of service life (Time 3) |
| *Permethrin* | | |
| STP (noise barrier) | 4.61E-08 | wood recently preserved |
| 1.73E-08 | wood preserved last year |
| 1.22E-09 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 2.19E-10 | 0-30 days (Time1) |
| 8.21E-11 | 30-365d (Time 2) |
| 5.83E-12 | 365d - end of service life (Time 3) |
| Soil (house) | 2.74E-09 | 0-30 days (Time1) |
| 1.03E-09 | 30-365d (Time 2) |
| 7.29E-11 | 365d - end of service life (Time 3) |
| *Propiconazole* | | |
| STP (noise barrier) | 4.06E-06 | wood recently preserved |
| 3.39E-06 | wood preserved last year |
| 2.35E-07 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 1.93E-08 | 0-30 days (Time1) |
| 1.61E-08 | 30-365d (Time 2) |
| 1.12E-09 | 365d - end of service life (Time 3) |
| Soil (house) | 2.42E-07 | 0-30 days (Time1) |
| 2.01E-07 | 30-365d (Time 2) |
| 1.40E-08 | 365d - end of service life (Time 3) |

Calculations for Scenario 5: Brushing/roller by professionals/non-professionals

| **Resulting local emission to relevant environmental compartments** | | |
| --- | --- | --- |
| **Compartment** | **Local emission (Elocalcompartment)**  **[kg/d]** | **Remarks** |
| *IPBC (application phase only)* | | |
| STP (noise barrier) | - | not applied in-situ |
| Fresh water (bridge over pond) | 1.75E-03 | Lost during application (amateur) |
| Soil (house) | 2.19E-02 | Lost during application (amateur) |
| *PBC (metabolite of IPBC)* | | |
| STP (noise barrier) | - | not applied in-situ |
| 6.02E-05 | wood recently preserved |
| 2.70E-05 | wood preserved last year |
| 3.54E-06 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 9.66E-04 | Lost during application (amateur) |
| 2.87E-07 | 0-30 days (Time1) |
| 1.29E-07 | 30-365d (Time 2) |
| 1.68E-08 | 365d - end of service life (Time 3) |
| Soil (house) | 1.21E-02 | Lost during application (amateur) |
| 3.58E-06 | 0-30 days (Time1) |
| 1.61E-06 | 30-365d (Time 2) |
| 2.11E-07 | 365d - end of service life (Time 3) |
| *Permethrin* | | |
| STP (noise barrier) | - | not applied in-situ |
| 4.61E-08 | wood recently preserved |
| 1.73E-08 | wood preserved last year |
| 2.55E-09 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 2.50E-04 | Lost during application (amateur) |
| 2.19E-10 | 0-30 days (Time1) |
| 8.21E-11 | 30-365d (Time 2) |
| 1.21E-11 | 365d - end of service life (Time 3) |
| Soil (house) | 3.13E-03 | Lost during application (amateur) |
| 2.74E-09 | 0-30 days (Time1) |
| 1.03E-09 | 30-365d (Time 2) |
| 1.52E-10 | 365d - end of service life (Time 3) |
| *Propiconazole* | | |
| STP (noise barrier) | - | not applied in-situ |
| 4.06E-06 | wood recently preserved |
| 3.39E-06 | wood preserved last year |
| 4.88E-07 | wood preserved >365d ago |
| Fresh water (bridge over pond) | 5.63E-04 | Lost during application (amateur) |
| 1.93E-08 | 0-30 days (Time1) |
| 1.61E-08 | 30-365d (Time 2) |
| 2.32E-09 | 365d - end of service life (Time 3) |
| Soil (house) | 7.03E-03 | Lost during application (amateur) |
| 2.42E-07 | 0-30 days (Time1) |
| 2.01E-07 | 30-365d (Time 2) |
| 2.90E-08 | 365d - end of service life (Time 3) |

***Fate and distribution in exposed environmental compartments***

The fate and distribution in exposed environmental compartments are covered by the active substance data on IPBC, permethrin and propiconazole.

| **Identification of relevant receiving compartments based on the exposure pathway** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Fresh-water | Freshwater sediment | Sea-water | Seawater sediment | STP | Air | Soil | Ground-water | Other |
| Scenario 1 | yes | yes | n.r.1 | n.r. | yes | no | yes | yes | n.r. |
| Scenario 5 | yes | yes | n.r. | n.r. | yes | no | yes | yes | n.r. |

1 Risk for seawater is covered by those for fresh water as no additional data on marine organisms is available and therefore PEC/PNEC rations are identical.

Calculations

Predicted environmental concentrations (PECs) are calculated according to the Exposure Scenario Document (ESD) for wood preservatives (version 2013). Removal of the active substances from exposed environmental compartments by leaching to groundwater and/or biodegradation is considered, but evaporation from soils was excluded as none of the active substances are volatile. PECs were calculated on basis of plateau concentrations (i.e. the concentration on day 30 and the last day of the preserved product’s service life) for the following reasons:

* TWA-based concentrations (time weighted average concentrations over 30 days and over the preserved product’s service life) as described in the ESD are only applicable when the PEC decrease in time. Because it may be expected that concentrations in water and soils gradually increase as initial leaching rates are usually higher than disappearance rates, TWA-based PECs underestimate actual risks, especially for the initial assessment period and substances that does not degrade and/or not mobile in soils;
* A TWA-approach does not necessarily protect the environment as concentrations may temporarily exceed the accompanying PNECs. Because TWA-based concentrations are usually averaged over 30 or 180 days (default values for industrial and agricultural soils, respectively, according to the TGD), an exceeding of the PNEC may therefore last 90 days maximal. However, preserved wood is in service for decades and in those cases a TWA-approach even may result in PECs that exceed the PNECs for several years, which is considered undesirable.

The concentrations on day 30 and at the last day of the preserved product’s service life are therefore calculated as follows:

where:

C(t) the concentration in the concerning compartment at time t;

Eleach daily entry into the environment due to leaching (mg/d). Note that the leaching rates are calculated over the assessment period, i.e. over 0-30 days, 30-365 days, and 365 d-end of service life;

X volume or size of the receiving compartment (L or kg);

k first order rate constant for removal from the concerning compartment (/d);

Cini initial concentration in compartment X. Note that the initial concentration is zero for the initial assessment period, but the concentration at day 30 for the longer assessment period;

t time (d).

The exposure assessment of each of the previous presented emission routes is explained in more detail in the following sections. The PECs are calculated by using the default values listed in the ESD unless otherwise noted. The physical-chemical parameters applied in the assessment for the different compartments (STP, water, sediment, and soils) are given elsewhere.

*Emission during industrial treatment and storage*

Emission to the sewer during industrial treatment, and soil and surface water during storage was calculated according to the corresponding scenarios as specified in the ESD without modifications. Emission was calculated for dipping.

*Preserved wood applied in, above, or adjacent to stagnant surface water*

Emission to stagnant surface water is calculated according to the scenarios for bridge over pond (wood applied above or adjacent of surface water). The ESD applies a three compartment model in which equilibrium between water and suspended matter, and water and sediment is assumed. The corresponding concentration in water, suspended matter, and sediment are calculated according to the active substances’ organic carbon-water partitioning coefficients (Koc). This however contradicts with the guidance where sediment is defined as freshly deposited suspended matter in flowing water and the concentration in sediment is based on the characteristics of and distribution constants for suspended matter. Therefore, the concentration in sediment was based on the partition coefficient and density of suspended matter instead the corresponding values for sediment.

Volume and mass of sediment is based on a thickness of 3 cm and a density of 1150 kg wwt/m³. No dimensions except for the volume (1000 m³) are given for the bridge over pond scenario. Therefore, a pond of 4 by 250 m was considered, where 4 m corresponds to the bridge’s length. These dimensions are considered as a realistic worst case as larger surfaces (i.e. more sediment) are advantageous for all PECs.

*Preserved wood applied above soils*

PECs for soil were calculated by applying the brushing house scenario according to PT08. This scenario assumes that the soil (13 m³) adjacent of the façade (125 m²) is polluted by spilling during application and leaching during service life. The application of this product concerns professional use only, but to calculate the emission, spillage during application was only considered for non-professional in-situ brushing because spillage by amateurs is worst-case compared to professional in-situ application. Note that spillage by non-professionals (5%) is worst-case as professionals spill less (3%).

*Emission to STP*

Emission to the STP was calculated according to the scenario for noise barriers as specified in the ESD without modifications.

*Groundwater*

Assessment of the drinking water criterion defines that the concentration of the active substances and the relevant metabolites in groundwater for the preparation of drinking water need to be < 0.1µg/L. The concentration in groundwater was estimated using FOCUS PEARL 4.4.4. The annual dose applied per hectare was calculated according to Supplement to Appendix 4 of the OECD ESD no. 2 for PT8 taking the service life into accoung. The annual leaching per m² was multiplied with the surface area of a house of 125 m² and 16 houses per hectare. Because PEARL is not suitable for continuous emission to the soil surface by leaching from treated wood, the dose was divided in ten equal proportions which were subsequently added to the soil surface. The application scheme as proposed in the OECD ESD no. 2 was used and grass was applied as a representative crop. Uptake by plants was not considered.

Calculations for metabolites

The following metabolites are identified:

* IPBC: PBC and iodine (all compartments);
* Permethrin: DCVA and PBA (all compartments);
* Propiconazole: 1,2,4-triazole (soil only)

In general, concentrations of metabolites in the environmental compartments are calculated by multiplying active substance concentrations and amounts leached over the assessment period (except for PBC for which leaching data is available) with the differences in molar weight. This approach considers 100% transformation of the parent into the metabolite or metabolites:

* PBC (from IPBC): 0.552
* DCVA (from permethrin): 0.534
* PBA (from permethrin): 0.547
* 1,2,4-triazole (from propiconazole): 0.202

However, metabolites were not considered in case of release to the sewer as none of the active substances are readily biodegradable and information on the appearance of metabolites during sewage treatment is lacking (e.g. STP simulation studies is not available). Metabolites are therefore assumed to be formed after being released to the aquatic (in effluent) or terrestrial (in sewage sludge) environment. Because the guidance does not consider degradation in the receiving freshwater body including sediment, it is not possible to calculate PECs in the receiving aquatic compartments. Metabolites in soils via distribution of sewage sludge were not considered as well. Possible risks of metabolites in soils are sufficiently covered by the risk assessment for direct emission as the latter results in a higher daily emission. The only exception, however, is PBC as IPBC is completely degraded abiotically in the leachate. PBC is assessed as an active substance based on the leaching data available for this metabolite.

In case of release to a static compartment (i.e. the scenarios for bridge over pond and brushing house), metabolites will be formed after release to the environment except for PBC that already appears in the leachates. Because degradation of the parent compound is considered, organisms are exposed to both active substances and metabolites. The maximum levels of parents and metabolites depend on how fast the substances disappear from water due to degradation and soils due to degradation, leaching, and evaporation. The maximum observed metabolite formation derived from degradation studies cannot be used for PT08 as the active substances is released to the environment continuously. The metabolite will therefore not reach a peak, but a plateau. However, this approach requires sophisticated multi-compartment models. The applied approach in which concentrations and leaching rates were corrected for differences in molar weights is therefore a simplified approach. Subsequent distribution of the metabolites in the environment was based on the metabolite’s physical-chemical properties as presented elsewhere. 1,2,4-triazole was only calculated for soil including groundwater as this metabolite was not detected in water/sediment studies.

Iodine resulting from IPBC was not assessed as the assessment report demonstrates that resulting PECs are within the natural background concentrations in all compartments exposed. See the assessment reports for IPBC (PT06 and PT08) and iodine (PT01, 03, 04, and 22) for more details.

*Physical-chemical properties*

The physical-chemical properties of the active substances and their metabolites are summarised below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for IPBC** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 281.1 | g/mol |  |
| Melting point | 65.8 | °C |  |
| Vapour pressure (at 20°C) | 4.5 x 10-3 | Pa |  |
| Water solubility (at 20°C) | 168 | mg/l |  |
| Organic carbon/water partition coefficient (Koc) | 134.5 | l/kg |  |
| Biodegradability | readily |  | IPBC is primary biodegradable according to Zahn-Wellens test. IPBC degrades rapidly (within 2 hours) to PBC. |
| DT50 for degradation in soil | 4.7 h  (= 0.1958 d) | d (at 12ºC) |  |
| DT50 for biodegradation in water/sediment | 3.1 h  (= 0.1292 d)  4.9 h | d (at 12ºC) |  |

\*Values are deduced from the IPBC PT13 AR (January 2015).

| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for PBC** | | | |
| --- | --- | --- | --- |
| Input | Value | Unit | Remarks |
| Molecular weight | 155.2 | g/mol |  |
| Melting point | - | °C | Not available. Emission to soils via air was calculated assuming that PBC is solid at 12°C. |
| Vapour pressure (at 20°C) | 18.8 | Pa |  |
| Water solubility (at 20°C) | 2.86E+03 | mg/l |  |
| Organic carbon/water partition coefficient (Koc) | 198.1 | l/kg |  |
| Biodegradability | no |  |  |
| DT50 for degradation in soil | 9.5 d | d (at 12ºC) |  |
| DT50 for biodegradation in water/sediment | 31.2 d  31.4 d | d (at 12ºC) |  |

\*Values are deduced from the IPBC PT13 AR (January 2015).

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for Permethrin** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 391.29 | g/mol |  |
| Melting point | 33 | °C |  |
| Vapour pressure (at 20°C) | 2.155 x 10-6 | Pa |  |
| Water solubility (at 20°C) | < 0.00495 | mg/l |  |
| Log Octanol/water partition coefficient | 4.67 | Log 10 |  |
| Organic carbon/water partition coefficient (Koc) | 26930 | l/kg |  |
| Biodegradability | no |  |  |
| DT50 for degradation in soil | 106 | d (at 12ºC) |  |
| DT50 for biodegradation in water/sediment | 46.7 | d (at 12ºC) |  |

\*Values are deduced from the Permethrin PT8 AR (April 2014) and CAR.

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for DCVA** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 209.07 | g/mol |  |
| Melting point | >12°C | °C | No data is available, it is assumed that the metabolite is a fluid in the environment |
| Vapour pressure (at 25°C) | 0.26 | Pa |  |
| Water solubility (at 25°C) | 127.6 | mg/l |  |
| Organic carbon/water partition coefficient (Koc) | 188.53 | L/kg |  |
| Biodegradability | no |  |  |
| DT50 for degradation in water/sediment | 188 | d | Worst-case value as published in the assessment report is applied. |
| DT50 for degradation in soil | 175 | d (12°C) |  |
| The ratio between the molar masses of DCVA and permethrin is 0.534. | | | |

\*Values are deduced from the Permethrin PT8 AR (April 2014) and CAR.

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for PBA** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 214.22 | g/mol |  |
| Melting point | >12 | °C | No data is available, it is assumed that the metabolite is a fluid in the environment |
| Vapour pressure (at 25°C) | 4.21 x 10-4 | Pa |  |
| Water solubility (at 25°C) | 16.91 | mg/l |  |
| Organic carbon/water partition coefficient (Koc) | 37.55 | l/kg |  |
| DT50 for degradation in water/sediment | 63.3 | d | Worst-case value as published in the assessment report is applied. |
| DT50 for degradation in soil | 2.5 | d (at 12ºC) |  |
| The ratio between the molar masses of PBA and Permethrin is 0.547 | | | |

\*Values are deduced from the Permethrin PT8 AR (April 2014) and CAR.

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for Propiconazole** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 342.2 | g/mol |  |
| Melting point | -23 | °C |  |
| Vapour pressure (at 25°C) | 5.6x10-5 | Pa |  |
| Water solubility (at 20°C) | 100 | mg/l |  |
| Log Octanol/water partition coefficient | 3.72 | Log 10 |  |
| Organic carbon/water partition coefficient (Koc) | 944 | l/kg |  |
| Biodegradability | no |  |  |
| DT50 for biodegradation in water/sediment | 1206 | d (at 12ºC) |  |
| DT50 for degradation in soil | 82 | d (at 12ºC) |  |

\*Values are deduced from the Propiconazole PT7 AR (January 2015).

|  |  |  |  |
| --- | --- | --- | --- |
| **Input parameters (only set values)\* for calculating the fate and distribution in the environment for 1,2,4-Triazole** | | | |
| Input | Value | Unit | Remarks |
| Molecular weight | 69.1 | g/mol |  |
| Melting point | 120 | °C | ECHA registration dossier |
| Vapour pressure (at 25°C) | 0.22 | Pa | PAR of UK (July 2015) for product authorisation of Korasit TT |
| Water solubility (at 20°C) | 700000 | mg/l | PAR of UK (July 2015) for product authorisation of Korasit TT |
| Organic carbon/water partition coefficient (Koc) | 69 | l/kg |  |
| DT50 for biodegradation in water/sediment | - | d (at 12ºC) | Metabolite not detected in aqueous systems |
| DT50 for degradation in soil | 115 | d (at 12ºC) |  |

\*Values are deduced from the Propiconazole PT7 AR (January 2015) and from the product assessment report of UK (July 2015) for the product authorisation of Korasit TT.

The distribution in the STP was calculated for each substance with SimpleTreat 3.1 based on the physical-chemical properties as listed above. As explained previously, the metabolites DCVA and PBA (from permethrin) and 1,2,4-triazole (from propiconazole) are formed after the STP. For these metabolites no distribution was calculated.

| **Calculated fate and distribution in the STP** | | | | |
| --- | --- | --- | --- | --- |
| Compartment | Percentage [%] | | | |
| IPBC | PBC | Permethrin | Propiconazole |
| Air | 0.935 | 1.22 | 0.0456 | 0.0152 |
| Water | 96.7 | 96.4 | 27.6 | 89.5 |
| Sludge | 2.41 | 2.41 | 72.4 | 10.5 |
| Degraded in STP | 0 | 0 | 0 | 0 |

***Calculated PEC values***

**Scenario 1: Automated dipping by industrials**

| **Summary table on calculated PEC values for automated dipping by industrials** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | **PECSTP** | **PECwater** | **PECsed** | **PECsoil** | **PECGW1** |
| [mg/L] | [mg/L] | [mg/kgwwt] | [mg/ kgwwt] | [μg/l] |
| *IPBC* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | not released during industrial application and storage as emission is prevented by risk mitigation measures  not released during service life as IPBC is degraded into PBC | | | | |
| from noise barriers installed last year2 |
| from noise barriers installed >365d ago |
| direct emission | | | | | |
| after 30 days | not released during industrial application and storage as emission is prevented by risk mitigation measures  not released during service life as IPBC is degraded into PBC | | | | |
| after 365 days2 |
| after 5475 days |
| *PBC* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 2.90E-05 | 2.90E-06 | 1.48E-05 | 1.18E-11 | 3.27E-09 |
| from noise barriers installed last year | 1.30E-05 | 1.30E-06 | 6.62E-06 | 5.31E-12 | 1.47E-09 |
| from noise barriers installed >365d ago | 8.20E-07 | 8.20E-08 | 4.17E-07 | 3.34E-13 | 9.25E-11 |
| direct emission | | | | | |
| after 30 days | - | 6.17E-06 | 3.14E-05 | 1.97E-03 | 0.55 |
| after 365 days | - | 5.69E-06 | 2.90E-05 | 9.95E-04 | 0.28 |
| after 5475 days | - | 3.58E-07 | 1.82E-06 | 6.27E-05 | 0.02 |
| *permethrin* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 6.35E-09 | 6.10E-10 | 3.58E-07 | 9.29E-14 | 1.96E-13 |
| from noise barriers installed last year | 2.38E-09 | 2.29E-10 | 1.34E-07 | 3.48E-14 | 7.32E-14 |
| from noise barriers installed >365d ago | 1.69E-10 | 1.62E-11 | 9.51E-09 | 2.47E-15 | 5.20E-15 |
| direct emission | | | | | |
| after 30 days | - | 1.69E-09 | 9.90E-07 | 3.38E-06 | 7.11E-06 |
| after 365 days | - | 1.76E-09 | 1.03E-06 | 6.69E-06 | 1.41E-05 |
| after 5475 days | - | 1.25E-10 | 7.32E-08 | 5.04E-07 | 1.06E-06 |
| *DCVA* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | n.c. | n.c. | n.c. | n.c. | n.c. |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission | | | | | |
| after 30 days | - | 3.27E-09 | 1.60E-08 | 1.87E-06 | 5.43E-04 |
| after 365 days | - | 9.25E-09 | 4.51E-08 | 4.97E-06 | 1.44E-03 |
| after 5475 days | - | 8.30E-10 | 4.05E-09 | 4.27E-07 | 1.24E-04 |
| *PBA* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | n.c. | n.c. | n.c. | n.c. | n.c. |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission | | | | | |
| after 30 days | - | 3.05E-09 | 4.88E-09 | 2.44E-07 | 3.13E-04 |
| after 365 days | - | 4.05E-09 | 6.48E-09 | 9.14E-08 | 1.17E-04 |
| after 5475 days | - | 2.90E-10 | 4.63E-10 | 6.49E-09 | 8.32E-06 |
| *propiconazole* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 1.82E-06 | 1.81E-07 | 3.87E-06 | 1.76E-14 | 1.05E-12 |
| from noise barriers installed last year | 1.52E-06 | 1.51E-07 | 3.22E-06 | 1.47E-14 | 8.73E-13 |
| from noise barriers installed >365d ago | 1.05E-07 | 1.05E-08 | 2.24E-07 | 1.02E-15 | 6.07E-14 |
| direct emission | | | | | |
| after 30 days | - | 5.35E-07 | 1.14E-05 | 2.90E-04 | 0.017 |
| after 365 days | - | 5.01E-06 | 1.07E-04 | 1.03E-03 | 0.061 |
| after 5475 days | - | 1.98E-06 | 4.22E-05 | 7.46E-05 | 4.45E-03 |
| *1,2,4-triazole* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | - | - | - | n.c. | n.c. |
| from noise barriers installed last year | - | - | - | n.c. | n.c. |
| from noise barriers installed >365d ago | - | - | - | n.c. | n.c. |
| direct emission | | | | | |
| after 30 days | - | - | - | 7.48E-05 | 5.59E-02 |
| after 365 days | - | - | - | 2.55E-04 | 1.90E-01 |
| after 5475 days | - | - | - | 1.98E-05 | 1.48E-02 |
| 1 The PECGW was calculated by using equilibrium partitioning  2 As requested by ECHA, but not applied for decision  n.c. Not calculated (see text)  - compartment not exposed | | | | | |

**Scenario 5: brushing and rolling by professionals**

The application of this product concerns professional use only, but to calculate the emission, spillage during application was only considered for non-professional in-situ brushing because spillage by amateurs is worst-case compared to professional in-situ application. Note that spillage by non-professionals (5%) is worst-case as professionals spill less (3%).

| **Summary table on calculated PEC values for Brushing/roller by professionals/non-professionals** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | **PECSTP** | **PECwater** | **PECsed** | **PECsoil** | **PECGW1** |
| [mg/L] | [mg/L] | [mg/kgwwt] | [mg/ kgwwt] | [μg/l] |
| *IPBC* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | not calculated as noise barriers are not preserved in-situ | | | | |
| from noise barriers installed last year2 |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 1.73E-03 | 6.40E-03 | 9.90E-01 | 3.97E+02 |
| after 30 days | - | below detection limit3 | | | |
| after 365 days2 |
| after 1825 days |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | not released during service life as IPBC is degraded into PBC | | | |
| after 365 days |
| after 1825 days |
| *PBC* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 2.90E-05 | 2.90E-06 | 1.48E-05 | 6.52E-08 | 7.29E-06 |
| from noise barriers installed last year | 1.30E-05 | 1.30E-06 | 6.62E-06 | 2.93E-08 | 3.27E-06 |
| from noise barriers installed >365d ago | 1.70E-06 | 1.70E-07 | 8.67E-07 | 3.83E-09 | 4.29E-07 |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 9.49E-04 | 4.83E-03 | 5.46E-01 | 1.51E+02 |
| after 30 days | - | 4.94E-04 | 2.51E-03 | 6.29E-02 | 17.411 |
| after 365 days | - | 5.98E-06 | 3.04E-05 | 9.95E-04 | 0.275 |
| after 1825 days | - | 7.45E-07 | 3.79E-06 | 1.30E-04 | 3.61E-02 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | 6.17E-06 | 3.14E-05 | 1.97E-03 | 0.545 |
| after 365 days | - | 5.69E-06 | 2.90E-05 | 9.95E-04 | 0.275 |
| after 1825 days | - | 7.45E-07 | 3.79E-06 | 1.30E-04 | 3.61E-02 |
| *permethrin* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 6.35E-09 | 6.10E-10 | 3.58E-07 | 4.27E-10 | 8.16E-10 |
| from noise barriers installed last year | 2.38E-09 | 2.29E-10 | 1.34E-07 | 1.60E-10 | 3.06E-10 |
| from noise barriers installed >365d ago | 3.51E-10 | 3.37E-11 | 1.98E-08 | 2.36E-11 | 4.51E-11 |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 7.95E-05 | 4.66E-02 | 1.41E-01 | 2.97E-01 |
| after 30 days | - | 5.09E-05 | 2.99E-02 | 1.16E-01 | 2.44E-01 |
| after 365 days | - | 3.55E-07 | 2.08E-04 | 1.30E-02 | 2.73E-02 |
| after 1825 days | - | 2.60E-10 | 1.52E-07 | 1.97E-06 | 4.15E-06 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | 1.69E-09 | 9.90E-07 | 3.38E-06 | 7.11E-06 |
| after 365 days | - | 1.76E-09 | 1.03E-06 | 6.69E-06 | 1.41E-05 |
| after 1825 days | - | 2.60E-10 | 1.52E-07 | 1.05E-06 | 2.21E-06 |
| *DCVA* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | n.c. | n.c. | n.c. | n.c. | n.c. |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 1.31E-04 | 6.41E-04 | 7.55E-02 | 2.19E+01 |
| after 30 days | - | 1.18E-04 | 5.74E-04 | 6.67E-02 | 1.94E+01 |
| after 365 days | - | 3.42E-05 | 1.67E-04 | 1.68E-02 | 4.87E+00 |
| after 1825 days | - | 1.59E-07 | 7.75E-07 | 4.15E-05 | 1.21E-02 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | 3.27E-09 | 1.60E-08 | 1.87E-06 | 5.43E-04 |
| after 365 days | - | 9.25E-09 | 4.51E-08 | 4.97E-06 | 1.44E-03 |
| after 1825 days | - | 1.76E-09 | 8.59E-09 | 8.98E-07 | 2.61E-04 |
| *PBA* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | n.c. | n.c. | n.c. | n.c. | n.c. |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 1.36E-04 | 2.17E-04 | 7.73E-02 | 9.91E+01 |
| after 30 days | - | 9.79E-05 | 1.57E-04 | 1.87E-05 | 2.40E-02 |
| after 365 days | - | 2.50E-06 | 4.00E-06 | 9.14E-08 | 1.17E-04 |
| after 1825 days | - | 6.03E-10 | 9.63E-10 | 1.35E-08 | 1.73E-05 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | 3.05E-09 | 4.88E-09 | 2.44E-07 | 3.13E-04 |
| after 365 days | - | 4.05E-09 | 6.48E-09 | 9.14E-08 | 1.17E-04 |
| after 1825 days | - | 6.02E-10 | 9.63E-10 | 1.35E-08 | 1.73E-05 |
| *propiconazole* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | 1.82E-06 | 1.81E-07 | 3.87E-06 | 1.16E-08 | 6.13E-07 |
| from noise barriers installed last year | 1.52E-06 | 1.51E-07 | 3.22E-06 | 9.71E-09 | 5.11E-07 |
| from noise barriers installed >365d ago | 2.18E-07 | 2.18E-08 | 4.64E-07 | 1.40E-09 | 7.36E-08 |
| direct emission (without precautionary measures) | | | | | |
| during application | - | 5.23E-04 | 1.11E-02 | 3.18E-01 | 1.90E+01 |
| after 30 days | - | 5.15E-04 | 1.10E-02 | 2.47E-01 | 14.719 |
| after 365 days | - | 4.29E-04 | 9.14E-03 | 1.54E-02 | 0.918 |
| after 1825 days | - | 1.88E-04 | 4.00E-03 | 1.55E-04 | 9.23E-03 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | 5.35E-07 | 1.14E-05 | 2.90E-04 | 0.017 |
| after 365 days | - | 5.01E-06 | 1.07E-04 | 1.03E-03 | 0.061 |
| after 1825 days | - | 4.29E-06 | 9.15E-05 | 1.55E-04 | 9.22E-03 |
| *1,2,4-triazole* | | | | | |
| emission via STP | | | | | |
| from recently installed noise barriers | - | - | - | n.c. | n.c. |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | | | | |
| during application | - | - | - | 6.43E-02 | 4.81E+01 |
| after 30 days | - | - | - | 5.30E-02 | 3.97E+01 |
| after 365 days | - | - | - | 6.36E-03 | 4.76E+00 |
| after 1825 days | - | - | - | 4.16E-05 | 3.11E-02 |
| direct emission (with precautionary measures) | | | | | |
| after 30 days | - | - | - | 7.48E-05 | 5.59E-02 |
| after 365 days | - | - | - | 2.55E-04 | 1.90E-01 |
| after 1825 days | - | - | - | 4.11E-05 | 3.08E-02 |
| 1 The PECGW was calculated by using equilibrium partitioning  2 As requested by ECHA, but not applied for decision  3 IPBC is not released during service life. Presented concentration are the residual fractions from losses during application;  n.c. Not calculated (see text)  - compartment not exposed | | | | | |

***Primary and secondary poisoning***

Primary poisoning

According to the ECHA-Guidance (2015) BPR, Vol. IV, ENV – Part B, section 3.8, a potential for bioaccumulation is indicated by different substance characteristics such as e.g. a log KOW-value ≥3, a high BCF-value or if the substance is “*known to have a potential to accumululate in living organism*”. IPBC has a low log KOW-value below the trigger value of 3 (i.e. 2.8) and thus, bioaccumulation is not indicated. Permethrin and propiconazole however have log KOW-values above this trigger value (i.e. 4.27 and 3.72, respectively) and thus, a potential for bioaccumulation is indicated. Therefore, it needs to be assessed for permethrin and propiconazole whether the intended uses result in a risk concerning secondary poisoning. Further information on the assessment of secondary poisoning is provided below.

Secondary poisoning

IPBC:

IPBC has neither a potential for bioaccumulation (log Kow < 3) nor is it classified as very toxic (T+), toxic (T) or harmful (Xn) with at least one of the risk phrases R48 "Danger of serious damage to health by prolonged exposure", R60 "May impair fertility", R61 "May cause harm to the unborn child", R62 " Possible risk of impaired fertility", R63 "Possible risk of harm to the unborn child", R64 "May cause harm to breastfed babies". Therefore no assessment of secondary poisoning was performed for IPBC.

Permethrin:

A log Kow of 4.27 was determined for permethrin, which is above the relevant trigger value of 3 as stated in the BPR Guidance Volume IV Environment – Part B (2015). The

BCFfish is 570 L/kg and the BCFearthworm is 15108 L/kg.

For the risk characterisation the following PNEC-values were used:

* PNECbird = 16.7 mg a.s./kg food
* PNECsmall mammal = 120 mg a.s./kg food

The PECoral,predator was calculated for the aquatic and for the terrestrial food chain according to the equation no. 76 and 82c of the BPR Guidance Volume IV Environment – Part B (2015). The highest PECsurfacewater, the highest PECsoil and porewater concentration were used as input parameter in the calculations. The PEC-values without degradation were taken into account as a worst case:

Scenario 1: Brushing/roller by professional (250 mL/m²)

PECsurfacewater: 7.95 x 10-5 mg/L

Scenario 1: Brushing/roller by professional (250 mL/m²)

PECsoil: 0.141 mg/kgwwt

Concentrationporewater: 0.000297 mg/L

The results of this calculation cover all other uses.

|  |  |
| --- | --- |
| **Summary table on calculated PECoral,predator** | |
|  | **PECoral,predator** |
| [mg/kgwwt] |
| Scenario 1 – aquatic food chain | 4.53E-02 |
| Scenario 1 – terrestrial food chain | 4.04 |

Propiconazole:

A log Kow of 3.72 was determined for propiconazole, which is above the relevant trigger value of 3 as stated in the BPR Guidance Volume IV Environment – Part B (2015). The BCFfish of an experimental test in Bluegill results in a value of 180 L/kg. The BCFearthworm was estimated with EUSES 2.1.2 to be 63.8 L/kg.

The PNECoral of 3.33 mg a.i./kg food was derived from a NOAEC of 100 mg a.i./kg food obtained from a two generation reproduction study with rats and considering an assessment factor of 30. This PNECoral was used for the risk characterisation.

The PECoral,predator was calculated for the aquatic and for the terrestrial food chain according to the equation no. 76 and 82c of the BPR Guidance Volume IV Environment – Part B (2015). The highest PECsurfacewater, the highest PECsoil and porewater concentration were used as input parameter in the calculations. The PEC-values without degradation were taken into account as a worst case:

Scenario 1: Brushing/roller by professional (250 mL/m²)

PECsurfacewater: 5.23 x 10-4 mg/L

Scenario 1: Brushing/roller by professional

PECsoil: 0.318 mg/kgwwt

Concentrationporewater: 0.019 mg/L

The results of this calculation cover all other uses.

|  |  |
| --- | --- |
| **Summary table on calculated PECoral,predator** | |
|  | **PECoral,predator** |
| [mg/kgwwt] |
| Scenario 1 – aquatic food chain | 0.094 |
| Scenario 1 – terrestrial food chain | 1.09 |

#### Risk characterisation

***Atmosphere***

Conclusion:Due to the low vapour pressures of IPBC (4.5 x 10-3 Pa at 25°C), Permethrin (2.155 x 10-6 Pa at 20°C) and Propiconazole (5.6 x 10-5 Pa at 25°C) the emission to air seems to be negligible and consequently not relevant. Therefore, the air compartment is not considered for the active substances in the environmental risk assessment.

***Sewage treatment plant (STP)***

The following PNEC-values were used for the risk characterisation:

***PNEC values***

|  |  |  |
| --- | --- | --- |
| **PNECSTP** | | |
| **PNECSTP**  **IPBC/PBC**  **[mg/L]** | **PNECSTP**  **Permethrin**  **[mg/L]** | **PNECSTP**  **Propiconazole**  **[mg/L]** |
| 0.44 | 0.00495 | 100 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Summary table on calculated PEC/PNEC values for IPBC, PBC, permethrin and propiconazole** | | | | |
|  | **PEC/PNECSTP** | | | |
| IPBC | PBC | Permethrin | Propiconazole |
| **Scenario 1: Automated dipping by industrials – service life (250 mL/m²)** | | | | |
| **Noise barrier – via STP** | | | | |
| from recently installed noise barriers | - | <0.001 | <0.001 | <0.001 |
| from noise barriers installed last year | - | <0.001 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | - | <0.001 | <0.001 | <0.001 |

Conclusion: Emission during service life results in PEC/PNEC values that are below one for IPBC’s metabolite PBC, permethrin, and propiconazole. The results of the risk characterisation show that there is no unacceptable risk for the sewage treatment plant from the use of the product Koranol Holzbau Grund by the intended uses. Note that risks related to industrial application and storage were not assessed as emission is negligible due to risk mitigation measures.

As previously discussed other intended uses are also covered by this assessment. The application rate may be higher than assessed especially for the combined use of borehole treatment with brushing/rolling treatment. However, as it mainly concerns curative/incidental treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling and PEC/PNEC ratios are well below 1, this is considered to be covered by the risk for incidental treatments is sufficiently covered by preventive treatments.

***Aquatic compartment***

***PNEC values***

***IPBC and major metabolites***

|  |  |  |  |
| --- | --- | --- | --- |
| **PNECwater and PNECsediment**  **IPBC and PBC** | | | |
| **IPBC** | | **PBC** | |
| **PNECwater**  **[µg/l]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[µg/l]** | **PNECsed**  **[mg/kgwwt]** |
| 0.46 | 0.00339 | 41.30 | 0.210 |

***Permethrin and major metabolites***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PNECwater and PNECsediment**  **Permethrin, DCVA, PBA** | | | | | |
| **Permethrin** | | **DCVA** | | **PBA** | |
| **PNECwater**  **[µg/l]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[mg/l]** | **PNECsed**  **[mg/kgwwt]** | **PNECwater**  **[mg/l]** | **PNECsed**  **[mg/kgwwt]** |
| 0.00047 | 2.17E-04 | 0.015 | 0.012 | 0.01 | 0.009 |

***Propiconazole***

|  |  |
| --- | --- |
| **PNECwater and PNECsediment**  **Propiconazole** | |
| **PNECwater**  **[µg/l]** | **PNECsed**  **[mg/kgwwt]** |
| 6.80 | 0.054 |

**Scenario 1: Automated dipping by industrials**

|  | **PEC/PNEC** | |
| --- | --- | --- |
| **water** | **sediment** |
| *IPBC* | | |
| emission via STP | | |
| from recently installed noise barriers | not released during industrial application and storage as emission is prevented by risk mitigation measures  not released during service life as IPBC is degraded into PBC | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | not released during industrial application and storage as emission is prevented by risk mitigation measures  not released during service life as IPBC is degraded into PBC | |
| after 365 days1 |
| after 5475 days |
| *PBC* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 5475 days | <0.001 | <0.001 |
| *permethrin* | | |
| emission via STP | | |
| from recently installed noise barriers | 0.001 | 0.002 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | 0.004 | 0.005 |
| after 365 days1 | 0.004 | 0.005 |
| after 5475 days | <0.001 | <0.001 |
| *DCVA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 5475 days | <0.001 | <0.001 |
| *PBA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 5475 days | <0.001 | <0.001 |
| *propiconazole* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | 0.002 |
| after 5475 days | <0.001 | <0.001 |
| ***total*** | | |
| emission via STP | | |
| from recently installed noise barriers | 0.003 | 0.004 |
| from noise barriers installed last year | 0.003 | 0.003 |
| from noise barriers installed >365d ago | 0.003 | 0.003 |
| direct emission | | |
| after 30 days | 0.008 | 0.009 |
| after 365 days1 | 0.008 | 0.010 |
| after 5475 days | 0.005 | 0.005 |
| 1 As requested by ECHA, but not applied for decision  n.c. Not calculated (see text)  - compartment not exposed | | |

**Scenario 5: brushing and rolling by professionals and non-professionals**

In contrast to industrial treatment, brushing may be applied in-situ. The application of this product concerns professional use only, but to calculate the emission, spillage during application was only considered for non-professional in-situ brushing because spillage by amateurs is worst-case compared to professional in-situ application. Note that spillage by non-professionals (5%) is worst-case as professionals spill less (3%).

|  | **PEC/PNEC** | |
| --- | --- | --- |
| **water** | **sediment** |
| *IPBC* | | |
| emission via STP | | |
| from recently installed noise barriers | not calculated as noise barriers are not preserved in-situ | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | |
| during application | **3.76** | **1.89** |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | not released during service life as IPBC is degraded into PBC | |
| after 365 days1 |
| after 1825 days |
| *PBC* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | 0.023 | 0.023 |
| after 30 days | 0.012 | 0.012 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| *permethrin* | | |
| emission via STP | | |
| from recently installed noise barriers | 0.001 | 0.002 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | **169** | **215** |
| after 30 days | **108** | **138** |
| after 365 days1 | 0.754 | 0.958 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.004 | 0.005 |
| after 365 days1 | 0.004 | 0.005 |
| after 1825 days | <0.001 | <0.001 |
| *DCVA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | |
| during application | 0.009 | 0.053 |
| after 30 days | 0.008 | 0.048 |
| after 365 days1 | 0.002 | 0.014 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| *PBA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission (without precautionary measures) | | |
| during application | 0.009 | 0.018 |
| after 30 days | 0.007 | 0.013 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| *propiconazole* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | 0.077 | 0.206 |
| after 30 days | 0.076 | 0.203 |
| after 365 days1 | 0.063 | 0.169 |
| after 1825 days | 0.028 | 0.074 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | 0.002 |
| after 1825 days | <0.001 | 0.002 |
| ***total*** | | |
| emission via STP | | |
| from recently installed noise barriers | 0.003 | 0.004 |
| from noise barriers installed last year1 | 0.003 | 0.003 |
| from noise barriers installed >365d ago | 0.003 | 0.003 |
| direct emission (without precautionary measures) | | |
| during application | **173** | **217** |
| after 30 days | **108** | **138** |
| after 365 days1 | 0.822 | 1.14 |
| after 1825 days | 0.033 | 0.079 |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.008 | 0.009 |
| after 365 days1 | 0.008 | 0.010 |
| after 1825 days | 0.005 | 0.006 |
| 1 As requested by ECHA, but not applied for decision  n.c. Not calculated (see text)  - compartment not exposed | | |

Conclusion: The PEC/PNEC values for IPBC, permethrin and propiconazole and their relevant major metabolites are below the trigger value of 1 for service life of the industrial uses.

For the professional use in-situ application is not safe as losses result in PECs that exceed the PNEC. Although precautionary measures may prevent unacceptable emission to water, such measures not applicable. Therefore, a label claim that the product should not be used near surface water will be applied. However, there is no need to apply the proposed measure for wood that is preserved elsewhere as emission during service life results in PECs below the trigger value of 1.

As previously discussed other intended uses are also covered by this assessment. The application rate may be higher than assessed especially for the combined use of borehole treatment with brushing/rolling treatment. However, as it mainly concerns curative/incidental treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling and PEC/PNEC ratios are well below 1, this is considered to be covered by the risk for incidental treatments is sufficiently covered by preventive treatments.

***Terrestrial compartment***

***PNEC values***

***IPBC and major metabolites***

|  |  |
| --- | --- |
| **PNECsoil**  **IPBC and PBC** | |
| **IPBC**  **[mg/kgwwt]** | **PBC**  **[mg/kgwwt]** |
| 0.004 | 0.149 |

***Permethrin and major metabolites***

|  |  |  |
| --- | --- | --- |
| **PNECsoil** | | |
| **Permethrin**  **[mg/kgwwt]** | **DCVA**  **[mg/kgwwt]** | **PBA**  **[mg/kgwwt]** |
| 0.175 | 4.6 | 1.44 |

***Propiconazole and major metabolite***

|  |  |
| --- | --- |
| **PNECsoil** | |
| **Propiconazole**  **[mg/kgwwt]** | **1,2,4-Triazole**  **[mg/kgwwt]** |
| 0.100 | 0.0082 |

**Scenario 1: Automated dipping by industrials**

|  | **PEC/PNEC** | |
| --- | --- | --- |
| **soil** | **porewater (µg/L)** |
| *IPBC* | | |
| emission via STP | | |
| from recently installed noise barriers | not released during service life as IPBC is degraded into PBC | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | not released during service life as IPBC is degraded into PBC | |
| after 365 days1 |
| after 5475 days |
| *PBC* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | 0.013 | **0.55** |
| after 365 days1 | 0.007 | **0.28** |
| after 5475 days | <0.001 | 0.02 |
| *permethrin* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 5475 days | <0.001 | <0.001 |
| *DCVA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | 0.001 |
| after 5475 days | <0.001 | <0.001 |
| *PBA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days1 | <0.001 | <0.001 |
| after 5475 days | <0.001 | <0.001 |
| *propiconazole* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year1 | <0.001 | <0.001 |
| from noise barriers installed >365d ago | <0.001 | <0.001 |
| direct emission | | |
| after 30 days | 0.003 | 0.017 |
| after 365 days1 | 0.010 | 0.061 |
| after 5475 days | 0.002 | 0.009 |
| *1,2,4-triazole* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year1 |
| from noise barriers installed >365d ago |
| direct emission | | |
| after 30 days | 0.009 | 0.056 |
| after 365 days1 | 0.031 | **0.190** |
| after 5475 days | 0.002 | 0.015 |
| ***total*** | | |
| emission via STP | | |
| from recently installed noise barriers | 0.004 | - |
| from noise barriers installed last year1 | 0.004 | - |
| from noise barriers installed >365d ago | 0.004 | - |
| direct emission | | |
| after 30 days | 0.037 | - |
| after 365 days1 | 0.05 | - |
| after 5475 days | 0.007 | - |
| 1 As requested by ECHA, but not applied for decision  n.c. Not calculated (see text)  - compartment not exposed | | |

**Scenario 5: brushing and rolling by professionals**

In contrast to industrial treatment, brushing may be applied in-situ. The application of this product concerns professional use only, but to calculate the emission, spillage during application was only considered for non-professional in-situ brushing because spillage by amateurs is worst-case compared to professional in-situ application. Note that spillage by non-professionals (5%) is worst-case as professionals spill less (3%).

|  | **PEC/PNEC** | |
| --- | --- | --- |
| **soil** | **porewater (µg/L)** |
| *IPBC* | | |
| emission via STP | | |
| from recently installed noise barriers | not calculated as noise barriers are not preserved in-situ | |
| from noise barriers installed last year1 |
| from noise barriers installed >365 ago |
| direct emission (without precautionary measures) | | |
| during application | **247** | **397** |
| after 30 days | <0.001 | <0.001 |
| after 365 days2 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | not released during service life as IPBC is degraded into PBC | |
| after 365 days1 |
| after 1825 days |
| *PBC* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365 ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | **3.67** | **151** |
| after 30 days | 0.43 | **17.7** |
| after 365 days2 | 0.006 | **0.245** |
| after 1825 days | <0.001 | 0.036 |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.021 | **0.850** |
| after 365 days | 0.006 | **0.245** |
| after 1825 days | <0.001 | 0.036 |
| *permethrin* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365 ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | 0.808 | **0.297** |
| after 30 days | 0.664 | **0.244** |
| after 365 days2 | 0.074 | 0.027 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| *DCVA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year |
| from noise barriers installed >365 ago |
| direct emission (without precautionary measures) | | |
| during application | 0.016 | **21.9** |
| after 30 days | 0.015 | **19.4** |
| after 365 days2 | 0.004 | **4.87** |
| after 1825 days | <0.001 | 0.012 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days | <0.001 | 0.001 |
| after 1825 days | <0.001 | <0.001 |
| *PBA* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year |
| from noise barriers installed >365 ago |
| direct emission (without precautionary measures) | | |
| during application | 0.017 | 99.126 |
| after 30 days | <0.001 | 0.024 |
| after 365 days2 | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| direct emission (with precautionary measures) | | |
| after 30 days | <0.001 | <0.001 |
| after 365 days | <0.001 | <0.001 |
| after 1825 days | <0.001 | <0.001 |
| *propiconazole* | | |
| emission via STP | | |
| from recently installed noise barriers | <0.001 | <0.001 |
| from noise barriers installed last year | <0.001 | <0.001 |
| from noise barriers installed >365 ago | <0.001 | <0.001 |
| direct emission (without precautionary measures) | | |
| during application | **3.18** | **19.0** |
| after 30 days | **2.47** | **14.7** |
| after 365 days2 | 0.154 | **0.916** |
| after 1825 days | 0.002 | 0.009 |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.004 | 0.021 |
| after 365 days | 0.01 | 0.060 |
| after 1825 days | 0.002 | 0.009 |
| *1,2,4-triazole* | | |
| emission via STP | | |
| from recently installed noise barriers | n.c. | |
| from noise barriers installed last year |
| from noise barriers installed >365 ago |
| direct emission (without precautionary measures) | | |
| during application | **7.84** | **48.1** |
| after 30 days | **6.47** | **39.7** |
| after 365 days2 | 0.775 | **4.76** |
| after 1825 days | 0.005 | 0.031 |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.009 | 0.056 |
| after 365 days | 0.031 | 0.190 |
| after 1825 days | 0.005 | 0.031 |
| ***total*** | | |
| emission via STP | | |
| from recently installed noise barriers | 0.003 | - |
| from noise barriers installed last year | 0.003 | - |
| from noise barriers installed >365 ago | 0.003 | - |
| direct emission (without precautionary measures) | | |
| during application | **259** | - |
| after 30 days | **7.58** | - |
| after 365 days2 | 0.862 | - |
| after 1825 days | 0.010 | - |
| direct emission (with precautionary measures) | | |
| after 30 days | 0.037 | - |
| after 365 days | 0.050 | - |
| after 1825 days | 0.011 | - |
| 1 As requested by ECHA, but not applied for decision  n.c. Not calculated (see text)  - compartment not exposed | | |

Conclusion: Release during application results in PEC/PNEC-values above 1. However, there is no risk if soils are covered during application. The risk mitigation measurement “covering of soil during application” will be added to the SPC.

As previously discussed other intended uses are also covered by this assessment. The application rate may be higher than assessed especially for the combined use of borehole treatment with brushing/rolling treatment. However, as it mainly concerns curative/incidental treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling and PEC/PNEC ratios are well below 1, this is considered to be covered by the risk for incidental treatments is sufficiently covered by preventive treatments.

The calculated PEC-values in groundwater are partly above the trigger value of 0.1 µg/L. However, these values were calculated in a first approach based on the PECsoil-values as described in the BPR Guidance Volume IV Environment – Part B (2015). A higher tier groundwater assessment using the FOCUS-PEARL model was performed (see the following chapter “Groundwater”). For the industrial application the PEC-values in groundwater are partly above the trigger value of 0.1 µg/L. However since cleaning water or any waste during application will be collected and discarded according to the national legislation no emission to the environment occurs.

***Groundwater***

A higher tier groundwater assessment using the model FOCUS PEARL was performed. The results were summarised in a separate report, which is attached in Appendix 22 of the PAR.

The calculated concentrations of PBC, permethrin (incl. DCVA, PBA) and propiconazole (incl. 1,2,4-triazole) in the leachate at one metre soil depth are in all scenarios far below the maximum permissible concentration of 0.1 µg/L as laid down by the Drinking Water Directive 2006/118/EC. The results show that there is no unacceptable risk for groundwater from the use of the products of Koranol Holzbau Grund for the intended uses.

As previously discussed other intended uses are also covered by this assessment. The application rate may be higher than assessed especially for the combined use of borehole treatment with brushing/rolling treatment. However, as it mainly concerns curative/incidental treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling and concentrations are well below the trigger value, this is considered to be covered by the risk for incidental treatments is sufficiently covered by preventive treatments.

***Primary and secondary poisoning***

Primary poisoning

According to the ECHA-Guidance (2015) BPR, Vol. IV, ENV – Part B, section 3.8, a potential for bioaccumulation is indicated by different substance characteristics such as e.g. a log KOW-value ≥3, a high BCF-value or if the substance is “*known to have a potential to accumulate in living organism*”. IPBC has a low log KOW-value below the trigger value of 3 (i.e. 2.8) and thus, bioaccumulation is not indicated. Permethrin and propiconazole however have log KOW-values above this trigger value (i.e. 4.27 and 3.72, respectively) and thus, a potential for bioaccumulation is indicated. Therefore, it needs to be assessed for permethrin and propiconazole whether the intended uses result in a risk concerning secondary poisoning. Further information on the assessment of secondary poisoning is provided below.

Secondary poisoning

Permethrin:

For the risk characterisation the following PNEC-values were used:

* PNECbird = 16.7 mg a.s./kg food
* PNECsmall mammal = 120 mg a.s./kg food

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Summary table on secondary poisoning for permethrin** | | | | |
| **Scenario** | **Concentration** | **PECoral predator** | **PEC/PNECbirds** | **PEC/PNECmammals** |
| Scenario 1 – aquatic food chain | [mg/kgwwt] | 4.53E-02 | 2.71E-03 | 3.78E-04 |
| Scenario 1 – terrestrial food chain | [mg/kgwwt] | 4.04 | 2.42E-01 | 3.37E-02 |

Propiconazole:

The PNECoral of 3.33 mg a.i./kg food was derived from a NOAEC of 100 mg a.i./kg food obtained from a two generation reproduction study with rats and considering an assessment factor of 30. This PNECoral was used for the risk characterisation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary table on secondary poisoning** | | | |
| **Scenario** | **Concentration** | **PECoral predator** | **PEC/PNECmammals** |
| Scenario 6 – aquatic food chain | [mg/kgwwt] | 0.094 | 2.83E-02 |
| Scenario 2&3 – terrestrial food chain | [mg/kgwwt] | 1.09 | 3.28E-01 |

Conclusion: The calculated risk quotients above show that there is no risk of permethrin and propiconazole via secondary poisoning.

As previously discussed other intended uses are also covered by this assessment. The application rate may be higher than assessed especially for the combined use of borehole treatment with brushing/rolling treatment. However, as it mainly concerns curative/incidental treatment against termites and other wood attacking insects by borehole treatment or in-situ brushing or rolling and PEC/PNEC ratios are well below 1, this is considered to be covered by the risk for incidental treatments is sufficiently covered by preventive treatments.

***Mixture toxicity***

The mixture toxicity was assessed on the basis of the “Transitional Guidance on mixture toxicity assessment for biocidal products for the environment (May 2014)”. In this guidance document the assessment scheme is based on four tiers starting with simple and conservative screening steps moving to higher tier steps.

The following assessment was performed according to Tier 1 (eq. 4) of the above mentioned guidance document in which the PEC/PNECs of the active substances were summed up:

Summed PEC:PNEC ratios are provided in the risk characterisation tables for each environmental compartment. Conclusions previously made are already for simultaneous exposure to all active ingredients and their metabolites.

***Aggregated exposure (combined for relevant emission sources)***

The product Koranol Holzbau Grund is only used in PT8. The active substances in this product or their metabolites are predominantly released during service life directly to soil or surface water. They will not be mixed up with the same substances from other anthropogenic sources. Since there is no overlap in space and time, an aggregate exposure assessment on product level is not deemed necessary.

See the decision tree in Figure 1 for details.



Figure 1: Decision tree on the need for estimation of aggregated exposure

|  |
| --- |
| **Overall conclusion on the risk assessment for the environment of the product** |
| The results of the environmental risk assessment show that there is no unacceptable risk for the environment from the intended uses of the product Koranol Holzbau Grund if the risk mitigation measurements are taken into account. The intended uses automated dipping and brushing/rolling were assessed, which also cover the other intended uses, including the combined use of borehole treatment with brushing/rolling. |

### Measures to protect man, animals and the environment

**Measures to protect man, animals and the environment**

**Recommended methods and precautions concerning storage of actice substance/biocidal product, shelf-life of biocidal product**

Requirements for storage rooms and vessels

Keep/Store only in original container.

Hints on joint storage

Storage class (TRGS 510) : 10

Further information on storage conditions

Protect containers against damage.

**Recommended methods and precautions concerning handling and transport**

Precautions for safe handling

Avoid contact with skin and eyes.

Protective measures

Use only in well-ventilated areas. Do not breathe gas/fumes/vapour/spray.

Measures to prevent fire

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges.

Personal protection equipment

Eye/face protection: Eye glasses with side protection.

Skin protection

Hand protection: The quality of the rpotective gloves resistant to chemicals must be chose as a function of the specific working place concentration and qualityof hazardous substances.

Suitable material : Butyl caoutchouc (butyl rubber) NBR (Nitrile rubber)

Breakthrough time (maximum wearing time) : 480 minutes. Check leak tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Thickness of the glove material: 0.4 mm

Respiratory protection

Respiratory protection necessary at: excedding exposure limit values insufficient ventilation Handling larger quantities. aerosol or mist formation.

Suitable respiratory protection apparatus: Filtering device with filter or ventilator filtering device of type: A

General health and safety measures

Avoid contact with skin, eyes and clothes. Remove contaminated, saturated clothing. Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs.

Transport information

UN number: UN 3082

UN proper shipping name

Land transport (ADR/RID): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( 3-IODO-2-PROPYNYL BUTYLCARBAMATE • PERMETHRIN (ISO) )

Sea transport (IMDG): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( 3-IODO-2-PROPYNYL BUTYLCARBAMATE • Propiconazole • PERMETHRIN (ISO) )

Air transport (ICAO-TI / IATA-DGR): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( 3-IODO-2-PROPYNYL BUTYLCARBAMATE • PERMETHRIN (ISO) )

Transport hazard class(es)

Land transport (ADR/RID)

Class(es) : 9

Classification code : M6

Hazard identification number (Kemler No.) : 90

Tunnel restriction code : E

Special provisions : LQ 7 • LQ 5 l • E 1

Hazard label(s) : 9 / N

Sea transport (IMDG)

Class(es) : 9

EmS-No. : F-A / S-F

Special provisions : LQ 5 l • E 1

Hazard label(s) : 9 / N

Air transport (ICAO-TI / IATA-DGR)

Class(es) : 9

Special provisions : E 1

Hazard label(s) : 9 / N

Packing group: III

Environmental hazards

Land transport (ADR/RID) : Yes

Sea transport (IMDG) : Yes (P)

Air transport (ICAO-TI / IATA-DGR) : Yes

Special precautions for user: None

**Recommended methods and precautions concerning fire; in case of fire nature of reaction products, combustions gases etc.**

Measures to prevent fire

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges.

Suitable extinguishing media

Carbon dioxide (CO2) alcohol resistant foam Water spray jet Extinguishing powder Sand

Unsuitable extinguishing media

None

Special hazards arising from the substance or mixture

None

Advice for firefighters

In case of fire toxic gases may be formed. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Special protective equipment for firefighters: Wear a self-contained breathing apparatus and chemical protective clothing.

Reactivity

No dangerous reactions known.

Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

Possibility of hazardous reactions

No dangerous reactions known.

Conditions to avoid

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges.

Incompatible materials

Oxidising agent, strong.

Hazardous decomposition products

No information available.

Additional information

None

**Particulars of likely direct or indirect adverse effects**

Most important symptoms and effects, both acute and delayed

May cause an allergic skin reaction. May be fatal if swallowed and enters airways. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking. May cause damage to organs through prolonged or repeated exposure.

**First aid instructions, antidotes**

General information

Change contaminated, saturated clothing. When in doubt or if symptoms are observed, get medical advice. Never give anything by mouth to an unconscious person or a person with cramps.

Following inhalation

Remove casualty to fresh air and keep warm and at rest. Provide fresh air.

In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. In case of skin reactions, consult a physician.

After eye contact

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an

ophthalmologist.

After ingestion

Do NOT induce vomiting. Rinse mouth thoroughly with water.

Self-protection of the first aider

First aider: Pay attention to self-protection!

Information to physician

Treatment: Treat symptomatically.

Indication of any immediate medical attention and special treatment needed

None

**Emergency measures to protect environment in case of accident**

Environmental precautions

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers).

Methods and material for containment and cleaning up

For cleaning up: Take up mechanically. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.

**Control measures of repellents or poison included in the biocidal product, to prevent action against non-target organisms (relevant for biocidal products only)**

Not required for biocidal products of product type 08 (wood preservatives).

**Possibility of destruction or decontamination following release in or on the following:**

**Air**

No specific instruction available.

**Water, including drinking water**

No specific instruction available.

**Soil**

No specific instruction available.

**Procedures for waste management of active substance/biodical product, and if appropriate, its packaging:**

**Possibility of reuse or recycling**

Reuse or recycling is not foreseen.

**Possibility of neutralization of effects**

Please refer to 'Emergency measures to protect environment in case of accident' above.

**Conditions for controller discharge including leachate qualities on disposal**

No specific instruction available.

**Conditions for controller incineration**

No specific instruction available.

**Instructions for safe disposal of the biocidal product and its packaging for different groups of users (relevant for biocidal products only)**

Waste treatment methods

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste. Consult the appropriate local waste disposal expert about waste disposal.

**Product/Packaging disposal**

Waste treatment options

Appropriate disposal/Product: The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Appropriate disposal/Package: Handle contaminated packages in the same way as the substance itself.

**Procedures, if any, for cleaning application equipment (relevant for biocidal products only)**

Not available.

### Assessment of a combination of biocidal products

The assessment of a combination of biocidal products is not required as the product Koranol Holzbau Grund is not intended to be used in combination with other products.

# Annexes[[3]](#footnote-3)

## List of studies for the biocidal product

***Table 1.1. Literature References generated from a Mixture/Product (including Literature References in any linked Substance)***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Type*** | | ***Section information*** | | ***Annex II/III requirement*** | | ***Open IUCLID document*** | |
| *Biocidal product* | | ***Section No.*** *3.1*  ***Section Name:*** *Appearance (at 20°C and 101.3 kPa)*  ***Name given to the Document:*** *III\_3.1\_key.001* | | *Appearance (at 20°C and 101.3 kPa)* | | *Document UUID: IUC5-844c7698-9467-453c-b5cf-752ffe2365b1*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.GeneralInformation/IUC5-844c7698-9467-453c-b5cf-752ffe2365b1*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.GeneralInformation/IUC5-844c7698-9467-453c-b5cf-752ffe2365b1) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-844c7698-9467-453c-b5cf-752ffe2365b1&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: Test Report* | *Title: Long term stability test of wood preservation formulation - Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2018* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/03A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 21, 2018* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.2*  ***Section Name:*** *Acidity, alkalinity*  ***Name given to the Document:*** *III\_3.2\_key.001* | | *Acidity, alkalinity* | | *Document UUID: IUC5-1be2a751-0786-4329-99df-027ea6692cc8*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.Ph/IUC5-1be2a751-0786-4329-99df-027ea6692cc8*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.Ph/IUC5-1be2a751-0786-4329-99df-027ea6692cc8) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-1be2a751-0786-4329-99df-027ea6692cc8&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: Test Report* | *Title: Long term stability test of wood preservation formulation - Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2018* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/03A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 21, 2018* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.3*  ***Section Name:*** *Relative density (liquids) and bulk, tap density (solids)*  ***Name given to the Document:*** *III\_3.3\_key.001* | | *Relative density (liquids) and bulk, tap density (solids)* | | *Document UUID: IUC5-afba7e0b-4b0d-4e58-a5e1-59b8bee38f6e*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.Density/IUC5-afba7e0b-4b0d-4e58-a5e1-59b8bee38f6e*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.Density/IUC5-afba7e0b-4b0d-4e58-a5e1-59b8bee38f6e) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-afba7e0b-4b0d-4e58-a5e1-59b8bee38f6e&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.4.1*  ***Section Name:*** *Storage stability tests*  ***Name given to the Document:*** *III\_3.4.1.2\_key.001* | | *Storage stability tests* | | *Document UUID: IUC5-8a2f0b15-28f7-4689-b704-45af66282f04*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.StorageStability/IUC5-8a2f0b15-28f7-4689-b704-45af66282f04*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.StorageStability/IUC5-8a2f0b15-28f7-4689-b704-45af66282f04) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-8a2f0b15-28f7-4689-b704-45af66282f04&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: Test Report* | *Title: Long term stability test of wood preservation formulation - Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2018* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/03A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 21, 2018* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.4.1*  ***Section Name:*** *Storage stability tests*  ***Name given to the Document:*** *III\_3.4.1.2\_key.002* | | *Storage stability tests* | | *Document UUID: f6c14585-7ce6-4aa8-acb1-fcc9d5a1b550*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.StorageStability/f6c14585-7ce6-4aa8-acb1-fcc9d5a1b550*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.StorageStability/f6c14585-7ce6-4aa8-acb1-fcc9d5a1b550) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=f6c14585-7ce6-4aa8-acb1-fcc9d5a1b550&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Accelerated Storage Test of the Wood Preservation Formulation Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. HPLC-16-29-KN\_HG* | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Sep 19, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.4.1*  ***Section Name:*** *Storage stability tests*  ***Name given to the Document:*** *III\_3.4.2.3\_key.001* | | *Storage stability tests* | | *Document UUID: IUC5-1ac80d50-3130-4c8f-b142-c54581d3ee2b*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.StorageStability/IUC5-1ac80d50-3130-4c8f-b142-c54581d3ee2b*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.StorageStability/IUC5-1ac80d50-3130-4c8f-b142-c54581d3ee2b) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-1ac80d50-3130-4c8f-b142-c54581d3ee2b&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: Test Report* | *Title: Long term stability test of wood preservation formulation - Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2018* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/03A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 21, 2018* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.8*  ***Section Name:*** *Surface tension*  ***Name given to the Document:*** *III\_3.8\_key.001* | | *Surface tension* | | *Document UUID: IUC5-c82b886c-81e0-4391-9b36-eb3afdc0b768*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.SurfaceTension/IUC5-c82b886c-81e0-4391-9b36-eb3afdc0b768*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.SurfaceTension/IUC5-c82b886c-81e0-4391-9b36-eb3afdc0b768) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-c82b886c-81e0-4391-9b36-eb3afdc0b768&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *3.9*  ***Section Name:*** *Viscosity*  ***Name given to the Document:*** *III\_3.9\_key.001* | | *Viscosity* | | *Document UUID: IUC5-d6aec64e-f629-4c69-b8b7-2d0dd30a3e45*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.Viscosity/IUC5-d6aec64e-f629-4c69-b8b7-2d0dd30a3e45*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.Viscosity/IUC5-d6aec64e-f629-4c69-b8b7-2d0dd30a3e45) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-d6aec64e-f629-4c69-b8b7-2d0dd30a3e45&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Koranol Holzbau Grund - determination of kinematic viscosity at 20 °C and 40 °C* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 02/16/PC* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Apr 8, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *4.1*  ***Section Name:*** *Explosives*  ***Name given to the Document:*** *III\_4.1\_key.001* | | *Explosives* | | *Document UUID: IUC5-19b96bf8-b1e7-420a-b11b-b7762b077ef2*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.Explosiveness/IUC5-19b96bf8-b1e7-420a-b11b-b7762b077ef2*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.Explosiveness/IUC5-19b96bf8-b1e7-420a-b11b-b7762b077ef2) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-19b96bf8-b1e7-420a-b11b-b7762b077ef2&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *4.17.1*  ***Section Name:*** *Auto-ignition temperature (liquids and gases)*  ***Name given to the Document:*** *III\_4.17.1\_key.001* | | *Auto-ignition temperature (liquids and gases)* | | *Document UUID: IUC5-fba66f3b-36a8-4413-969a-a51f71d0954b*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.AutoFlammability/IUC5-fba66f3b-36a8-4413-969a-a51f71d0954b*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.AutoFlammability/IUC5-fba66f3b-36a8-4413-969a-a51f71d0954b) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-fba66f3b-36a8-4413-969a-a51f71d0954b&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *4.2*  ***Section Name:*** *Flammability*  ***Name given to the Document:*** *III\_4.6\_key.001* | | *Flammability* | | *Document UUID: IUC5-c0825980-8334-477c-89b0-8e8723208b46*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.Flammability/IUC5-c0825980-8334-477c-89b0-8e8723208b46*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.Flammability/IUC5-c0825980-8334-477c-89b0-8e8723208b46) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-c0825980-8334-477c-89b0-8e8723208b46&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *4.4*  ***Section Name:*** *Oxidising properties*  ***Name given to the Document:*** *III\_4.13\_key.001* | | *Oxidising properties* | | *Document UUID: IUC5-d9c5447d-dffb-43c2-860b-d94339d933f5*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.OxidisingProperties/IUC5-d9c5447d-dffb-43c2-860b-d94339d933f5*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.OxidisingProperties/IUC5-d9c5447d-dffb-43c2-860b-d94339d933f5) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-d9c5447d-dffb-43c2-860b-d94339d933f5&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of physical- and safety-relevant data of Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 2015/01411* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 7, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *5*  ***Section Name:*** *Methods of detection and identification*  ***Name given to the Document:*** *III\_5.1\_key.001* | | *METHODS OF DETECTION AND IDENTIFICATION* | | *Document UUID: IUC5-5f1bb198-2273-4249-a5fc-20e9b6538b22*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.AnalyticalMethods/IUC5-5f1bb198-2273-4249-a5fc-20e9b6538b22*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.AnalyticalMethods/IUC5-5f1bb198-2273-4249-a5fc-20e9b6538b22) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-5f1bb198-2273-4249-a5fc-20e9b6538b22&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: Test Report* | *Title: Long term stability test of wood preservation formulation - Koranol Holzbau Grund* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2018* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/03A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 21, 2018* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.001* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-07a163e4-8089-44e1-a784-3691212044c2*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-07a163e4-8089-44e1-a784-3691212044c2*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-07a163e4-8089-44e1-a784-3691212044c2) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-07a163e4-8089-44e1-a784-3691212044c2&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the preventive action against recently hatched larvae of Hylotrupes bajalus (L.) according to EN 46-1 (06/05) after leaching procedure according to EN 84 (05/97).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2010* | *Testing laboratory: xxxx* | *Report no. 32/10/9386/08* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Sep 3, 2010* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.001* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=89c2cbc4-1bb1-423b-bfba-fb00f92d7c36&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the preventive action against recently hatched larvae of Hylotrupes bajulus (L.) according to EN 46.1 (2009) after leaching procedure according to EN 84 (1997).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2015* | *Testing laboratory: xxxx* | *Report no. 32/15/9882/04A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Dec 3, 2015* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.001* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=89c2cbc4-1bb1-423b-bfba-fb00f92d7c36&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: Efficacy of Insecticides against Lyctus Powder-Post Beetle, Luctus brunneus (Steph.).* | *Author: Ito, T.; Funaki, Y.; Hirose, C.* | *Bibliographic source: Botyu-Kagaku (1976), 41(3): 138-142*  *​*  *Year: 1976* | *Testing laboratory: Sumitomo Chemical Co. Ltd., (Research Department, Pesticides Division)* | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Aug 31, 1976* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.001* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/89c2cbc4-1bb1-423b-bfba-fb00f92d7c36) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=89c2cbc4-1bb1-423b-bfba-fb00f92d7c36&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: The evaluation of permethrin for wood preservation.* | *Author: Berry, R. W.* | *Bibliographic source: Pestic. Sci., 8: 284-290.*  *​*  *Year: 1977* | *Testing facility:* No testing laboratory provided | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Jun 1, 1977* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.002* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-5b82a174-e39f-4575-b04e-d91d97edab20*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-5b82a174-e39f-4575-b04e-d91d97edab20*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-5b82a174-e39f-4575-b04e-d91d97edab20) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-5b82a174-e39f-4575-b04e-d91d97edab20&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the preventive action against recently hatched larvae of Hylotrupes bajalus (L.) according to EN 46-1 (2009) and in combination with evaporative ageing procedure according to EN 73 (2014).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 32/16/9971/01* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Nov 30, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.003* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-efe4d584-d98a-4a0a-98fd-a03406a8defa*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-efe4d584-d98a-4a0a-98fd-a03406a8defa*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-efe4d584-d98a-4a0a-98fd-a03406a8defa) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-efe4d584-d98a-4a0a-98fd-a03406a8defa&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the preventive action against Reticulitermes santonensis de Feytaud according to EN 118 (06/2005) in combination with leaching according to EN 84 (EN05/97).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2011* | *Testing laboratory: xxxx* | *Report no. 32/10/9455/02* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: May 31, 2011* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.003* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: f76cdac0-9bdc-442a-a015-997f985412bc*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=f76cdac0-9bdc-442a-a015-997f985412bc&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the toxic values against recently hatched larvae of Hylotrupes bajulus (L.) according to EN 47 (2005) in combination with leaching procedure according to EN 84 (1997)* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2015* | *Testing laboratory: xxxx* | *Report no. 32/15/9882/09A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Dec 3, 2015* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.003* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: f76cdac0-9bdc-442a-a015-997f985412bc*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=f76cdac0-9bdc-442a-a015-997f985412bc&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: Efficacy of Insecticides against Lyctus Powder-Post Beetle, Luctus brunneus (Steph.).* | *Author: Ito, T.; Funaki, Y.; Hirose, C.* | *Bibliographic source: Botyu-Kagaku (1976), 41(3): 138-142*  *​*  *Year: 1976* | *Testing laboratory: Sumitomo Chemical Co. Ltd., (Research Department, Pesticides Division)* | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Aug 31, 1976* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.003* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: f76cdac0-9bdc-442a-a015-997f985412bc*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/f76cdac0-9bdc-442a-a015-997f985412bc) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=f76cdac0-9bdc-442a-a015-997f985412bc&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: The evaluation of permethrin for wood preservation.* | *Author: xxxx* | *Bibliographic source: Pestic. Sci., 8: 284-290.*  *​*  *Year: 1977* | *Testing facility:* No testing laboratory provided | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Jun 1, 1977* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.004* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-41b5a616-8c0d-49ef-8df0-96c9f0f57641*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-41b5a616-8c0d-49ef-8df0-96c9f0f57641*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-41b5a616-8c0d-49ef-8df0-96c9f0f57641) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-41b5a616-8c0d-49ef-8df0-96c9f0f57641&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the preventive action against Reticulitermes santonensis de Feytaud according to EN 118 (06/2005) in combination with evaporative ageing procedure according to EN 73 (04/90).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2011* | *Testing laboratory: xxxx* | *Report no. 32/10/9455/04* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Aug 4, 2011* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.005* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-0a021bad-e787-4b8b-bfd9-c8f44acd17d5*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-0a021bad-e787-4b8b-bfd9-c8f44acd17d5*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-0a021bad-e787-4b8b-bfd9-c8f44acd17d5) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-0a021bad-e787-4b8b-bfd9-c8f44acd17d5&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the toxic values according to DIN EN 113 (1996) after leaching exposure according to DIN EN 84 (1997).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2010* | *Testing laboratory: xxxx* | *Report no. 229010-Teil1-A1* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Mar 25, 2010* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.006* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-47005cd2-e41f-4534-a223-d4989beeb8a3*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-47005cd2-e41f-4534-a223-d4989beeb8a3*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-47005cd2-e41f-4534-a223-d4989beeb8a3) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-47005cd2-e41f-4534-a223-d4989beeb8a3&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the protective effectiveness of preservatives against basidiomycetes - Determination of toxic values according to DIN EN 113 after evaporation procedure according to DIN EN 73.* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2010* | *Testing laboratory: xxxx* | *Report no. 229010-Teil 2* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Apr 6, 2010* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.007* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-15c1d0fe-2a41-4c5e-9bbd-df88fd36c3a7*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-15c1d0fe-2a41-4c5e-9bbd-df88fd36c3a7*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-15c1d0fe-2a41-4c5e-9bbd-df88fd36c3a7) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-15c1d0fe-2a41-4c5e-9bbd-df88fd36c3a7&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the eradicant action against larvae of Hylotrupes bajulus (L.) according to EN 1390 (09/2006).* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2011* | *Testing laboratory: xxxx* | *Report no. 32/10/9455/05* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Jul 19, 2011* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.007* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 542653e3-94b6-4707-8b7c-d9de049354d3*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=542653e3-94b6-4707-8b7c-d9de049354d3&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Determination of the toxic values against recently hatched larvae of Hylotrupes bajulus (L.) according to EN 47 (2005) in combination with leaching procedure according to EN 84 (1997)* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2015* | *Testing laboratory: xxxx* | *Report no. 32/15/9882/09A* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Dec 3, 2015* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.007* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 542653e3-94b6-4707-8b7c-d9de049354d3*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=542653e3-94b6-4707-8b7c-d9de049354d3&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: Efficacy of Insecticides against Lyctus Powder-Post Beetle, Luctus brunneus (Steph.).* | *Author: Ito, T.; Funaki, Y.; Hirose, C.* | *Bibliographic source: Botyu-Kagaku (1976), 41(3): 138-142*  *​*  *Year: 1976* | *Testing laboratory: Sumitomo Chemical Co. Ltd., (Research Department, Pesticides Division)* | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Aug 31, 1976* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_read-across.007* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: 542653e3-94b6-4707-8b7c-d9de049354d3*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/542653e3-94b6-4707-8b7c-d9de049354d3) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=542653e3-94b6-4707-8b7c-d9de049354d3&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: publication* | *Title: The evaluation of permethrin for wood preservation.* | *Author: Berry, R. W.* | *Bibliographic source: Pestic. Sci., 8: 284-290.*  *​*  *Year: 1977* | *Testing facility:* No testing laboratory provided | *Report no.:* No report number provided | *Study sponsor:* No company owner provided  *​*  *Study number:* No company study number provided | *Report date: Jun 1, 1977* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *6.7*  ***Section Name:*** *Efficacy data to support these claims*  ***Name given to the Document:*** *III\_6.7\_key.008* | | *Efficacy data to support these claims, including any available standard protocols, laboratory tests or field trials used including performance standards where appropriate and relevant* | | *Document UUID: IUC5-b98ae3ac-7df5-4e70-8eb4-8997c6ccdb5a*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EfficacyData/IUC5-b98ae3ac-7df5-4e70-8eb4-8997c6ccdb5a*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EfficacyData/IUC5-b98ae3ac-7df5-4e70-8eb4-8997c6ccdb5a) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-b98ae3ac-7df5-4e70-8eb4-8997c6ccdb5a&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: Laboratory method for determining the protective effectiveness of a preservative treatment against blue stain according to EN 152 part 1 (08/89) after 6 months of field testing.* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2010* | *Testing laboratory: xxxx* | *Report no. 32/10/9387/01* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Jan 20, 2011* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *10.3*  ***Section Name:*** *Leaching behaviour*  ***Name given to the Document:*** *III\_10.3\_key.001* | | *Leaching behaviour* | | *Document UUID: IUC5-d4106088-3b49-49e0-a11d-900057bee516*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EmissionsFromPreservativeTreatedWood/IUC5-d4106088-3b49-49e0-a11d-900057bee516*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EmissionsFromPreservativeTreatedWood/IUC5-d4106088-3b49-49e0-a11d-900057bee516) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-d4106088-3b49-49e0-a11d-900057bee516&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: NT BUILD 509 “Leaching of active ingredients from preservative-treated timber - Semi-field testing”* | *Author: xxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/01* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Jan 27, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |
| *Biocidal product* | | ***Section No.*** *10.3*  ***Section Name:*** *Leaching behaviour*  ***Name given to the Document:*** *III\_10.3\_key.002* | | *Leaching behaviour* | | *Document UUID: IUC5-3b2c7b4c-d30e-42d2-915c-ddcd511475a1*  *Open this IUCLID document in your web browser (the base URL may need adjusting):* [*http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT\_STUDY\_RECORD.EmissionsFromPreservativeTreatedWood/IUC5-3b2c7b4c-d30e-42d2-915c-ddcd511475a1*](http://localhost:8080/iuclid6-web/browser/dossier/8ffaa8a6-7cab-4375-93e2-20f9d462d384/MIXTURE/IUC5-4f2c61d4-7531-4b1f-aaf7-218cd0772dd0/ENDPOINT_STUDY_RECORD.EmissionsFromPreservativeTreatedWood/IUC5-3b2c7b4c-d30e-42d2-915c-ddcd511475a1) *or, if you have a server version of IUCLID running,* [*open the IUCLID document in the* ***server version*** *of IUCLID*](http://localhost:8080/webstart/launch.jnlp?uuid=IUC5-3b2c7b4c-d30e-42d2-915c-ddcd511475a1&snapshot=8ffaa8a6-7cab-4375-93e2-20f9d462d384) | |
| *Reference type: study report* | *Title: NT BUILD 509 “Leaching of active ingredients from preservative-treated timber - Semi-field testing”* | *Author: xxxxx* | *Bibliographic source:* No bibliographic source provided  *​*  *Year: 2016* | *Testing laboratory: xxxx* | *Report no. 31/14/2313/02* | *Company owner: Kurt Obermeier GmbH & Co. KG*  *​*  *Study number:* No company study number provided | *Report date: Jan 27, 2016* |
| *Remarks:* no remarks in literature reference | | | | | | | |

### Comparative assessment

Not relevant, the active substances are not candidates for substitution.

## Output tables from exposure assessment tools

### Human Health Risk Assessment

**Statement on dermal absorption**

Please refer to section 3.6.5 Dermal penetration in the Confidential Annex.

**Appendix 1**

Scenario 1.2.1. Application – Automated dipping by industrials

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Automated dipping by industrials (solvent-based)** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional automated dipping/immersion of wood articles”  Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinions 8 and 18 - 2009/2013** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 117.7 | 1.24 |
| Penetration through skin *[a.s.]* | mg | 8.945 | 0.094 |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.49E-01** | **1.57E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **372.5** | **3.9** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| negligible |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **1.49E-01** | **1.57E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **372.8** | **3.9** |
|  |  |  |  |
|  | | | |

**Appendix 1 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Automated dipping by industrials (solvent-based)** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional automated dipping/immersion of wood articles”  Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinions 8 and 18 - 2009/2013** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 366.2 | 3.861 |
| Penetration through skin *[a.s.]* | mg | 109.864 | 1.158 |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.83E+00** | **1.93E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **915.5** | **9.7** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.6 | 0.6 |
| **Total systemic exposure** | **mg/kg bw/day** | **1.83E+00** | **1.93E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **915.5** | **9.7** |
|  | | | |

**Appendix 1 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Automated dipping by industrials (solvent-based)** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional automated dipping/immersion of wood articles”  Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinions 8 and 18 - 2009/2013** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 52.316 | 0.552 |
| Penetration through skin *[a.s.]* | mg | 5.232 | 0.055 |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **8.72E-02** | **9.19E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **174.4** | **1.84** |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.6 | 0.6 |
| **Total systemic exposure** | **mg/kg bw/day** | **8.72E-02** | **9.19E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **174.4** | **1.84** |
|  |  |  |  |
|  | | | |

**Appendix 2**

Scenario 1.2.2. Application – Manual dipping by industrials and professionals

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Manual dipping by industrials** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional manual dipping of wood articles”  Dipping model 1 (User Guidance, 2002) - HEEG opinion 8 - 2009 This model includes mixing/loading.** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/min | 2570.0 | 25.7 |
| Duration | min | 30 | 30 |
| Actual hand deposit | mg | 77100.0 | 771.0 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/min | 178 | 178 |
| Duration | min | 30 | 30 |
| Potential dermal deposit | mg | 5340 | 5340 |
|  |  |  |  |
| Clothing pentration | % | 100 | 10 |
| Actual dermal deposit | mg | 5340 | 534 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 370.980 | 5.873 |
| Penetration through skin *[a.s.]* | mg | 28.194 | 0.446 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **4.70E-01** | **7.44E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **1175** | **18.60** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 1 | 1 |
| Duration | min | 30 | 30 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.625 | 0.625 |
| Inhaled product | mg | 0.625 | 0.625 |
| Inhaled a.s. | mg | 0.0028125 | 0.0028125 |
| Inhaled a.s. | mg/m³ | 0.0045 | 0.0045 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **4.69E-05** | **4.69E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **0.12** | **0.12** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0045** | **0.0045** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **4.70E-01** | **7.49E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **1175** | **18.71** |

**Appendix 2 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Manual dipping by industrials** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional manual dipping of wood articles”  Dipping model 1 (User Guidance, 2002) - HEEG opinion 8 - 2009 This model includes mixing/loading.** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/min | 2570.0 | 25.7 |
| Duration | min | 30 | 30 |
| Actual hand deposit | mg | 77100.0 | 771.0 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/min | 178 | 178 |
| Duration | min | 30 | 30 |
| Potential dermal deposit | mg | 5340 | 5340 |
|  |  |  |  |
| Clothing pentration | % | 100 | 10 |
| Actual dermal deposit | mg | 5340 | 534 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 1154.160 | 18.270 |
| Penetration through skin *[a.s.]* | mg | 346.248 | 5.481 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **5.77E+00** | **9.14E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **2885.40** | **45.68** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 1 | 1 |
| Duration | min | 30 | 30 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.625 | 0.625 |
| Inhaled product | mg | 0.625 | 0.625 |
| Inhaled a.s. | mg | 0.00875 | 0.00875 |
| Inhaled a.s. | mg/m³ | 0.014 | 0.014 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **1.46E-04** | **1.46E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **0.07** | **0.07** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.014** | **0.014** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **5.77E+00** | **9.15E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **2885.47** | **45.75** |

**Appendix 2 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Manual dipping by industrials** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional manual dipping of wood articles”  Dipping model 1 (User Guidance, 2002) - HEEG opinion 8 - 2009 This model includes mixing/loading.** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value inside gloves | mg/min | 2570.0 | 25.7 |
| Duration | min | 30 | 30 |
| Actual hand deposit | mg | 77100.0 | 771.0 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/min | 178 | 178 |
| Duration | min | 30 | 30 |
| Potential dermal deposit | mg | 5340 | 5340 |
|  |  |  |  |
| Clothing pentration | % | 100 | 10 |
| Actual dermal deposit | mg | 5340 | 534 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 164.880 | 2.610 |
| Penetration through skin *[a.s.]* | mg | 16.49 | 0.261 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **2.75E-01** | **4.35E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **549.6** | **8.7** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 1 | 1 |
| Duration | min | 30 | 30 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.625 | 0.625 |
| Inhaled product | mg | 0.625 | 0.625 |
| Inhaled a.s. | mg | 0.00125 | 0.00125 |
| Inhaled a.s. | mg/m³ | 0.002 | 0.002 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **2.08E-05** | **2.08E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **0.04** | **0.04** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.002** | **0.002** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **2.75E-01** | **4.37E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **549.64** | **8.74** |

**Appendix 3**

Scenario 1.2.3. Application -Flow coating (deluging) by industrials

IPBC – standard coverall



IPBC – impermeable coverall



Permethrin – standard coverall



Permethrin – impermeable coverall



Propiconazole – standard coverall



Propiconazole – impermeable coverall



**Appendix 4**

Scenario 1.3. Post-application -System maintenance by industrials

|  |  |  |  |
| --- | --- | --- | --- |
| **Post-Application -System maintenance by industrials (solvent-based)** | | | |
| **Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinion 8 - 2009** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
|  |  |  |  |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 117.711 | 1.241 |
| Penetration through skin *[a.s.]* | mg | 8.946 | 0.094 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.49E-01** | **1.57E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **372.75** | **3.93** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.6 | 0.6 |
| Duration | min | 60 | 60 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.25 | 1.25 |
| Inhaled product | mg | 0.75 | 0.75 |
| Inhaled a.s. | mg | 0.003375 | 0.003375 |
| Inhaled a.s. | mg/m³ | 0.0027 | 0.0027 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **5.63E-05** | **5.63E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **0.141** | **0.141** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0027** | **0.0027** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **1.49E-01** | **1.63E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **372.89** | **4.07** |

**Appendix 4 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Post-Application -System maintenance by industrials (solvent-based)** | | | |
| **Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinion 8 - 2009** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
|  |  |  |  |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 366.212 | 3.861 |
| Penetration through skin *[a.s.]* | mg | 109.864 | 1.158 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.83E+00** | **1.93E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **915.53** | **9.65** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.6 | 0.6 |
| Duration | min | 60 | 60 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.25 | 1.25 |
| Inhaled product | mg | 0.75 | 0.75 |
| Inhaled a.s. | mg | 0.0105 | 0.0105 |
| Inhaled a.s. | mg/m³ | 0.0084 | 0.0084 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **1.75E-04** | **1.75E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **0.088** | **0.088** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0084** | **0.0084** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **1.83E+00** | **1.95E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **915.62** | **9.74** |

**Appendix 4 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Post-Application -System maintenance by industrials (solvent-based)** | | | |
| **Handling model 1 solvent-based (User Guidance, 2002) - HEEG opinion 8 - 2009** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/cycle | 26000 | 260 |
| Cycles |  | 1 | 1 |
| Actual hand deposit | mg | 26000 | 260 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/cycle | 158 | 158 |
| Cycles |  | 1 | 1 |
| Potential dermal deposit | mg | 158 | 158 |
|  |  |  |  |
| Clothing penetration | % | 100 | 10 |
| Actual dermal deposit | mg | 158 | 15.8 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 52.316 | 0.552 |
| Penetration through skin *[a.s.]* | mg | 5.232 | 0.055 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **8.72E-02** | **9.2E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **174.39** | **1.84** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.6 | 0.6 |
| Duration | min | 60 | 60 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.25 | 1.25 |
| Inhaled product | mg | 0.75 | 0.75 |
| Inhaled a.s. | mg | 0.0015 | 0.0015 |
| Inhaled a.s. | mg/m³ | 0.0012 | 0.0012 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **2.50E-05** | **2.50E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **0.050** | **0.050** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0012** | **0.0012** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **8.72E-02** | **9.44E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **174.45** | **1.89** |

**Appendix 5**

Scenario 2.1. Mixing and Loading of RTU

|  |  |  |  |
| --- | --- | --- | --- |
| **Manual mixing and loading - pouring liquids** | | | |
| **dermal and inhalation exposure: Mixing and loading model 7 - pouring liquids (HEEG opinion 1 2008)** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 101 | 1 |
| Duration | min | 10 | 10 |
| Actual hand deposit | mg | 1010 | 10 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 4.545 | 0.045 |
| Penetration through skin *[a.s.]* | mg | 0.345 | 0.003 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **5.76E-03** | **5.76E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **14.39** | **0.14** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.94 | 0.94 |
| Duration | min | 10 | 10 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.208 | 0.208 |
| Inhaled product | mg | 0.196 | 0.196 |
| Inhaled a.s. | mg | 0.001 | 0.001 |
| Inhaled a.s. | mg/m³ | 0.004 | 0.004 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **1.47E-05** | **1.47E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **0.04** | **0.04** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0042** | **0.0042** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **5.77E-03** | **7.23E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **14.44** | **0.18** |

**Appendix 5 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Manual mixing and loading - pouring liquids** | | | |
| **dermal and inhalation exposure: Mixing and loading model 7 - pouring liquids (HEEG opinion 1 2008)** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 101 | 1 |
| Duration | min | 10 | 10 |
| Actual hand deposit | mg | 1010 | 10 |
|  |  |  |  |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 14.140 | 0.141 |
| Penetration through skin *[a.s.]* | mg | 4.242 | 0.042 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **7.07E-02** | **7.07E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **35.4** | **0.35** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.94 | 0.94 |
| Duration | min | 10 | 10 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.208 | 0.208 |
| Inhaled product | mg | 0.196 | 0.196 |
| Inhaled a.s. | mg | 0.003 | 0.003 |
| Inhaled a.s. | mg/m³ | 0.013 | 0.013 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **4.57E-05** | **4.57E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **0.02** | **0.02** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0132** | **0.0132** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **7.07E-02** | **7.53E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **35.4** | **0.38** |

**Appendix 5 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Manual mixing and loading - pouring liquids** | | | |
| **dermal and inhalation exposure: Mixing and loading model 7 - pouring liquids (HEEG opinion 1 2008)** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 101 | 1 |
| Duration | min | 10 | 10 |
| Actual hand deposit | mg | 1010 | 10 |
|  |  |  |  |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 2.020 | 0.020 |
| Penetration through skin *[a.s.]* | mg | 0.202 | 0.002 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **3.37E-03** | **3.37E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **6.7** | **0.07** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.94 | 0.94 |
| Duration | min | 10 | 10 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 0.208 | 0.208 |
| Inhaled product | mg | 0.196 | 0.196 |
| Inhaled a.s. | mg | 0.000 | 0.000 |
| Inhaled a.s. | mg/m³ | 0.002 | 0.002 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **6.53E-06** | **6.53E-06** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **0.01** | **0.01** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0019** | **0.0019** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **3.37E-03** | **4.02E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **6.75** | **0.08** |

**Appendix 6**

Scenario 2.2.1. Application – Borehole filling without pressure by professionals

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Borehole filling without pressure by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 "Professional borehole impregnation" Mixing and loading Model 4 (TNsG 2007) for dermal exposure estimation.** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value | mg/loading | 10 | 10 |
| Number of assumed loadings |  | 100 | 100 |
| Potential hand deposit [*a.s.*] | mg | 1000 | 1000 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 1000 | 100 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 4.5 | 0.5 |
| Penetration through skin *[a.s.]* | mg | 0.34 | 0.03 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **5.7E-03** | 5.70E-04 |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | 0.04 |
| **% AELlong-term** | **%** | **14.25** | 1.43 |

**Appendix 6 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Borehole filling without pressure by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 "Professional borehole impregnation" Mixing and loading Model 4 (TNsG 2007) for dermal exposure estimation.** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | Tier 2 |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value | mg/loading | 10 | 10 |
| Number of assumed loadings |  | 100 | 100 |
| Potential hand deposit [*a.s.*] | mg | 1000 | 1000 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 1000 | 100 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 14 | 1 |
| Penetration through skin *[a.s.]* | mg | 4.2 | 0.4 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **7.00E-02** | 7.00E-03 |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | 0.2 |
| **% AELlong-term** | **%** | **35.00** | 3.50 |

**Appendix 6 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Borehole filling without pressure by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 "Professional borehole impregnation" Mixing and loading Model 4 (TNsG 2007) for dermal exposure estimation.** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | Tier 2 |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value | mg/loading | 10 | 10 |
| Number of assumed loadings |  | 100 | 100 |
| Potential hand deposit [*a.s.*] | mg | 1000 | 1000 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 1000 | 100 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 2 | 0 |
| Penetration through skin *[a.s.]* | mg | 0.2 | 0.02 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **3.33E-03** | 3.33E-04 |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | 0.05 |
| **% AELlong-term** | **%** | **6.67** | 0.67 |

**Appendix 7**

Scenario 2.2.2. Application – Borehole pressure injection

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Borehole pressure injection by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional borehole pressure impregnation - Liquid”  Subsoil treatment Model 2 (TNsG 2002) This model includes mixing/loading.** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 800 | 8 |
| Duration | min | 80 | 80 |
| Actual hand deposit | mg | 64000.0 | 640.0 |
|  |  |  |  |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 288.00 | 2.88 |
| Penetration through skin *[a.s.]* | mg | 21.89 | 2.19 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **3.65E-01** | **3.65E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **912** | **9.12** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.57 | 0.57 |
| Duration | min | 80 | 80 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.667 | 1.667 |
| Inhaled product | mg | 0.950 | 0.950 |
| Inhaled a.s. | mg | 0.004 | 0.004 |
| Inhaled a.s. | mg/m³ | 0.003 | 0.003 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **7.13E-05** | **7.13E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **0.18** | **0.18** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0026** | **0.0026** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **3.65E-01** | **3.72E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **912** | **9.30** |

**Appendix 7 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Borehole pressure injection by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional borehole pressure impregnation - Liquid”  Subsoil treatment Model 2 (TNsG 2002) This model includes mixing/loading.** | | | |
| **1.4% IPBC** |  |  |  |
|  |  |  | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 800 | 8 |
| Duration | min | 80 | 80 |
| Actual hand deposit | mg | 64000.0 | 640.0 |
|  |  |  |  |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 896.000 | 8.960 |
| Penetration through skin *[a.s.]* | mg | 268.800 | 2.688 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **4.48E+00** | **4.48E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **2240.00** | **22.40** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.57 | 0.57 |
| Duration | min | 80 | 80 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.667 | 1.667 |
| Inhaled product | mg | 0.95 | 0.95 |
| Inhaled a.s. | mg | 0.0133 | 0.0133 |
| Inhaled a.s. | mg/m³ | 0.0080 | 0.0080 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **2.22E-04** | **2.22E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **0.11** | **0.11** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0080** | **0.0080** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **4.48E+00** | **4.50E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **2240.11** | **22.51** |

**Appendix 7 (cond't)**

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| --- | --- | --- | --- |
| **Application - Borehole pressure injection by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional borehole pressure impregnation - Liquid”  Subsoil treatment Model 2 (TNsG 2002) This model includes mixing/loading.** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Actual hand exposure inside gloves** |  |  |  |
| Indicative value | mg/min | 800 | 8 |
| Duration | min | 80 | 80 |
| Actual hand deposit | mg | 64000.0 | 640.0 |
|  |  |  |  |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 128.000 | 1.280 |
| Penetration through skin *[a.s.]* | mg | 12.80 | 0.128 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **2.13E-01** | **2.13E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **426.67** | **4.27** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value | mg/m³ | 0.57 | 0.57 |
| Duration | min | 80 | 80 |
| Inhalation rate | m³/min | 0.021 | 0.021 |
| Inhaled volume | m³ | 1.667 | 1.667 |
| Inhaled product | mg | 0.95 | 0.95 |
| Inhaled a.s. | mg | 0.0019 | 0.0019 |
| Inhaled a.s. | mg/m³ | 0.0011 | 0.0011 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **3.17E-05** | **3.17E-05** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **0.06** | **0.06** |
| **Active substance, inhaled per m³** | **mg/m³** | **0.0011** | **0.0011** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **2.13E-01** | **2.17E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **426.73** | **4.33** |

**Appendix 8**

Scenario 2.2.3. Application – Brushing and rolling by professionals

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Brushing/rolling - outdoors (solvent-based) by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional brush treatment”  (based on Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006)** | | | |
| **0.45% Propiconazol** |  |  |  |
|  |  | **Tier 1** | **Tier 2 / Gloves** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.45 | 0.45 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 7.6 | 7.6 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value\*\* | mg/m² | 0.5417 | 0.5417 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential hand deposit | mg | 17.1 | 17.1 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 17.1 | 1.7 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/m² | 0.2382 | 0.2382 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential dermal deposit | mg | 7.53 | 7.53 |
| Clothing penetration | % | 100 | 100 |
| Actual dermal deposit | mg | 7.53 | 7.53 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 11.09 | 4.16 |
| Penetration through skin *[a.s.]* | mg | 0.84 | 0.32 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.40E-02** | **5.27E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **35.12** | **13.17** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value\*\* | mg/m² | 0.0016 | 0.0016 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Inhaled a.s. | mg | 0.02 | 0.02 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **3.79E-04** | **3.79E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **0.948** | **0.948** |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **1.44E-02** | **5.65E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** | **0.04** |
| **% AELlong-term** | **%** | **36.07** | **14.11** |
|  |  |  |  |
| \*According to Biocides Human Health Exposure Methodology (2015), the application area is calculated using the median work rate of 7.6 min/m² (acc. to TNsG 2002 "Consumer painting Model 3" and the exposure duration of 240 min. Calculation: 1/7.6 min/m² \*240 min = 31.6 m²   \*\*Note: The indicative values refer to product containing 1% a.s.  Furthermore, the indicative values are referring to the exposure when brushing an area of 1 m² (acc. to Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006). | | |  |

**Appendix 8 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Brushing/rolling - outdoors (solvent-based) by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional brush treatment”  (based on Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006)** | | | |
| **1.4% IPBC** |  |  |  |
|  |  | **Tier 1** | **Tier 2 / Gloves** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 1.4 | 1.4 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 30 | 30 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value\*\* | mg/m² | 0.5417 | 0.5417 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential hand deposit | mg | 17.1 | 17.1 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 17.1 | 1.7 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/m² | 0.2382 | 0.2382 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential dermal deposit | mg | 7.53 | 7.53 |
| Clothing penetration | % | 100 | 100 |
| Actual dermal deposit | mg | 7.53 | 7.53 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 34.50 | 12.93 |
| Penetration through skin *[a.s.]* | mg | 10.35 | 3.88 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **1.73E-01** | **6.47E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **86.26** | **32.34** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value\*\* | mg/m² | 0.0016 | 0.0016 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Inhaled a.s. | mg | 0.07 | 0.07 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **1.18E-03** | **1.18E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **0.59** | **0.59** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **1.74E-01** | **6.59E-02** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** | **0.2** |
| **% AELlong-term** | **%** | **86.85** | **32.93** |
|  |  |  |  |
| \*According to Biocides Human Health Exposure Methodology (2015), the application area is calculated using the median work rate of 7.6 min/m² (acc. to TNsG 2002 "Consumer painting Model 3" and the exposure duration of 240 min. Calculation: 1/7.6 min/m² \*240 min = 31.6 m²   \*\*Note: The indicative values refer to product containing 1% a.s.  Furthermore, the indicative values are referring to the exposure when brushing an area of 1 m² (acc. to Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006). | | |  |

**Appendix 8 (cond't)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application - Brushing/rolling - outdoors (solvent-based) by professionals** | | | |
| **Biocides Human Health Exposure Methodology (version 1, October 2015) – PT8 “Professional brush treatment”  (based on Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006)** | | | |
| **0.2% Permethrin** |  |  |  |
|  |  | **Tier 1** | **Tier 2 / Gloves** |
| **Product** | **Units** |  |  |
| Active substance | % w/w | 0.2 | 0.2 |
| Body weight | kg | 60 | 60 |
| Dermal penetration rate | % | 10 | 10 |
|  |  |  |  |
| **Potential dermal exposure** |  |  |  |
| **Potential hand exposure** |  |  |  |
| Indicative value\*\* | mg/m² | 0.5417 | 0.5417 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential hand deposit | mg | 17.1 | 17.1 |
| Penetration through gloves | % | 100 | 10 |
| Actual hand deposit | mg | 17.1 | 1.7 |
|  |  |  |  |
| **Potential body exposure** |  |  |  |
| Indicative value | mg/m² | 0.2382 | 0.2382 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Potential dermal deposit | mg | 7.53 | 7.53 |
| Clothing penetration | % | 100 | 100 |
| Actual dermal deposit | mg | 7.53 | 7.53 |
| **Total dermal exposure** |  |  |  |
| Total dermal deposit [a.s.] | mg | 4.93 | 1.85 |
| Penetration through skin *[a.s.]* | mg | 0.49 | 0.19 |
|  |  |  |  |
| **Systemic exposure via dermal route** | **mg/kg bw/day** | **8.22E-03** | **3.08E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **16.43** | **6.16** |
|  |  |  |  |
| **Exposure by inhalation** |  |  |  |
| Indicative value\*\* | mg/m² | 0.0016 | 0.0016 |
| Duration | min | 240 | 240 |
| Application area\* | m² | 31.6 | 31.6 |
| Inhaled a.s. | mg | 0.01 | 0.01 |
| **Systemic exposure via inhalation route** | **mg/kg bw/day** | **1.69E-04** | **1.69E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **0.34** | **0.34** |
|  |  |  |  |
|  |  |  |  |
| **Total systemic exposure** | **mg/kg bw/day** | **8.39E-03** | **3.25E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** | **0.05** |
| **% AELlong-term** | **%** | **16.77** | **6.50** |
|  |  |  |  |
| \*According to Biocides Human Health Exposure Methodology (2015), the application area is calculated using the median work rate of 7.6 min/m² (acc. to TNsG 2002 "Consumer painting Model 3" and the exposure duration of 240 min. Calculation: 1/7.6 min/m² \*240 min = 31.6 m²   \*\*Note: The indicative values refer to product containing 1% a.s.  Furthermore, the indicative values are referring to the exposure when brushing an area of 1 m² (acc. to Summary Report - Human Exposure to Wood Preservatives, Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E., BfR Wissenschaft, 2006). | | |  |

**Appendix 9**

Scenario 2.3. Post-application – Washing out of a brush by professionals

|  |  |  |
| --- | --- | --- |
| **Post-application - Cleaning of brush (non-professional use)** | | |
| **HEEG opinion 11 (2010): "Washing out of a brush which has been used to apply a paint", for application of non-water-based paints** | | |
| **0.45% Propiconazole** |  | **Tier-1** |
| **Parameters** | **Units** |  |
| Volume of brush (corresponding to a brush size of 10 x 10 x 2 cm) | mL | 200 |
| Volume of product remaining on brush after application (1/8 of 200mL) | mL | 25 |
| Density of product | g/mL | 0.82 |
| Volume of each washing solution (at least) | mL | 400 |
| Percentage of residues remaining in brush after each washing step | % | 10 |
| Percentage of residues remaining in brush after squeezing (following each washing step) | % | 50 |
| Percentage of residues absorbed by cloth | % | 90 |
| Percentage of residues available to contaminate the hand | % | 10 |
| Body weight | kg | 60 |
| Dermal absorption | % | 7.6 |
| Concentration of a.s. in the product | % (w/w) | 0.45 |
|  |  |  |
| **After application** |  |  |
| Weight on brush after application [product] | mg | 20500 |
| Weight on brush after application [active substance] | mg | 92.25 |
|  |  |  |
| **After 1st washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 9.23 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 83.03 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 4.61 |
| Weight on brush after 1st washing and sqeezing [active substance] | mg | 4.61 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.46 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.46 |
| Internal hand exposure [active substance] | mg | 0.035 |
|  |  |  |
| **After 2nd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 0.46 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 4.15 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.23 |
| Weight on brush after 2nd washing and sqeezing [active substance] | mg | 0.23 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.02 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.02 |
| Internal hand exposure [active substance] | mg | 0.002 |
|  |  |  |
| **After 3rd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 0.02 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 0.21 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.01 |
| Weight on brush after 3rd washing and sqeezing [active substance] | mg | 0.01 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.001 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.001 |
| Internal hand exposure [active substance] | mg | 0.0001 |
|  |  |  |
| **Total internal hand exposure [active substance]** | **mg** | **0.037** |
| **Total systemic dermal exposure [active substance]** | **mg/kg bw/day** | **6.15E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.04** |
| **% AELlong-term** | **%** | **1.54** |

**Appendix 9 (cond't)**

|  |  |  |
| --- | --- | --- |
| **Post-application - Cleaning of brush (non-professional use)** | | |
| **HEEG opinion 11 (2010): "Washing out of a brush which has been used to apply a paint", for application of non-water-based paints** | | |
| **1.4% IPBC** |  | **Tier-1** |
| **Parameters** | **Units** |  |
| Volume of brush (corresponding to a brush size of 10 x 10 x 2 cm) | mL | 200 |
| Volume of product remaining on brush after application (1/8 of 200mL) | mL | 25 |
| Density of product | g/mL | 0.82 |
| Volume of each washing solution (at least) | mL | 400 |
| Percentage of residues remaining in brush after each washing step | % | 10 |
| Percentage of residues remaining in brush after squeezing (following each washing step) | % | 50 |
| Percentage of residues absorbed by cloth | % | 90 |
| Percentage of residues available to contaminate the hand | % | 10 |
| Body weight | kg | 60 |
| Dermal absorption | % | 30 |
| Concentration of a.s. in the product | % (w/w) | 1.40 |
|  |  |  |
| **After application** |  |  |
| Weight on brush after application [product] | mg | 20500 |
| Weight on brush after application [active substance] | mg | 287.00 |
|  |  |  |
| **After 1st washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 28.70 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 258.30 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 14.35 |
| Weight on brush after 1st washing and sqeezing [active substance] | mg | 14.35 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 1.44 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 1.44 |
| Internal hand exposure [active substance] | mg | 0.43 |
|  |  |  |
| **After 2nd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 1.44 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 12.92 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.72 |
| Weight on brush after 2nd washing and sqeezing [active substance] | mg | 0.72 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.07 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.07 |
| Internal hand exposure [active substance] | mg | 0.02 |
|  |  |  |
| **After 3rd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 0.07 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 0.65 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.04 |
| Weight on brush after 3rd washing and sqeezing [active substance] | mg | 0.04 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.004 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.004 |
| Internal hand exposure [active substance] | mg | 0.001 |
|  |  |  |
| **Total internal hand exposure [active substance]** | **mg** | **0.453** |
| **Total systemic dermal exposure [active substance]** | **mg/kg bw/day** | **7.55E-03** |
| **AELlong-term** | **mg/kg bw/day** | **0.2** |
| **% AELlong-term** | **%** | **3.78** |

**Appendix 9 (cond't)**

|  |  |  |
| --- | --- | --- |
| **Post-application - Cleaning of brush (non-professional use)** | | |
| **HEEG opinion 11 (2010): "Washing out of a brush which has been used to apply a paint", for application of non-water-based paints** | | |
| **0.2% Permethrin** |  | **Tier-1** |
| **Parameters** | **Units** |  |
| Volume of brush (corresponding to a brush size of 10 x 10 x 2 cm) | mL | 200 |
| Volume of product remaining on brush after application (1/8 of 200mL) | mL | 25 |
| Density of product | g/mL | 0.82 |
| Volume of each washing solution (at least) | mL | 400 |
| Percentage of residues remaining in brush after each washing step | % | 10 |
| Percentage of residues remaining in brush after squeezing (following each washing step) | % | 50 |
| Percentage of residues absorbed by cloth | % | 90 |
| Percentage of residues available to contaminate the hand | % | 10 |
| Body weight | kg | 60 |
| Dermal absorption | % | 10 |
| Concentration of a.s. in the product | % (w/w) | 0.20 |
|  |  |  |
| **After application** |  |  |
| Weight on brush after application [product] | mg | 20500 |
| Weight on brush after application [active substance] | mg | 41.00 |
|  |  |  |
| **After 1st washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 4.10 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 36.90 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 2.05 |
| Weight on brush after 1st washing and sqeezing [active substance] | mg | 2.05 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.21 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.21 |
| Internal hand exposure [active substance] | mg | 0.02 |
|  |  |  |
| **After 2nd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 0.21 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 1.85 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.10 |
| Weight on brush after 2nd washing and sqeezing [active substance] | mg | 0.10 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.01 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.01 |
| Internal hand exposure [active substance] | mg | 0.001 |
|  |  |  |
| **After 3rd washing** |  |  |
| **Residues on brush** |  |  |
| Residues on brush [active substance] | mg | 0.01 |
| Amount removed from the brush into the cleaning fluid [active substance] | mg | 0.09 |
| Weight squeezed out from brush onto cloth [active substance] | mg | 0.01 |
| Weight on brush after 3rd washing and sqeezing [active substance] | mg | 0.01 |
|  |  |  |
| **Dermal exposure** |  |  |
| Weight available to contaminate the hand [active substance] | mg | 0.001 |
| Penetration through gloves | % | 100 |
| Weight on hand [active substance] | mg | 0.001 |
| Internal hand exposure [active substance] | mg | 0.0001 |
|  |  |  |
| **Total internal hand exposure [active substance]** | **mg** | **0.02** |
| **Total systemic dermal exposure [active substance]** | **mg/kg bw/day** | **3.60E-04** |
| **AELlong-term** | **mg/kg bw/day** | **0.05** |
| **% AELlong-term** | **%** | **0.72** |

**Appendix 10**

Scenario 4.1.1. Secondary exposure - Sawing and sanding treated wood by professionals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Calculation** | | | | |
| **Active substance** | **Propiconazol** | **IPBC** | **Permethrin** | **Unit** |  |
| Application rate of product | **350** | | | ml/m² |  |
| Density of product | 0.82 | | | g/ml | acc. to MSDS |
| Concentration of a.s. in product | 0.45 | 1.4 | 0.2 | % |  |
| Amount of a.s. on treated wood | **0.129** | **0.402** | **0.057** | **mg/cm²** |  |
| Amount of a.s. in 1 cm outer layer | 0.129 | 0.402 | 0.057 | mg/cm³ |  |
| Volume of wooden post | 4000 | 4000 | 4000 | cm³ | 4 x 4 x 250 [cm] |
| Untreated inner core of post | 992 | 992 | 992 | cm³ | 2 x 2 x 248 [cm] |
| Volume of the outer 1cm layer | 3008 | 3008 | 3008 | cm³ |  |
| Amount of a.s. in the volume of the outer 1 cm layer | 0.172 | 0.534 | 0.076 | mg/cm³ |  |
| Amount of a.s. on the surface of treated wood (conservative assumption that the entire retained a.s. is present on the surface) | 0.172 | 0.534 | 0.076 | mg/cm² |  |
| **Dermal exposure** | | | | | |
| Hand area (palms of both hands) (adult) (acc. to HEEG 2013) | 410 | 410 | 410 | cm² |  |
| Assuming that 20% of hand area will be contaminated (adult). | 82 | 82 | 82 | cm² |  |
| Amount of a.s.on hands (adult) | 14.083 | 43.813 | 6.259 | mg/d |  |
| Transfer coefficient (acc. to TNsG 2007 for dried fluids on rough sawn wood) | 2 | 2 | 2 | % |  |
| Dermal penetration | **7.6** | **1.6** | **10** | % |  |
| Dermal exposure (adult) towards a.s. | 2.14E-02 | 1.40E-02 | 1.25E-02 | mg/d |  |
| Considering a body weight of 60 kg (adult) | 3.57E-04 | 2.34E-04 | 2.09E-04 | mg/kg bw/d |  |
| **Inhalation exposure** | | | | | |
| Generated dust / m³ of sanded treated wood. U.K. WEL of 5 mg/m3 wood dust (8-hour time-weighted average) | 5 | 5 | 5 | mg/m³ |  |
| Duration (worker) | 6 | 6 | 6 | h |  |
| Inhalation rate | 1.25 | 1.25 | 1.25 | m³/h |  |
| Generated dust /6 h | 37.5 | 37.5 | 37.5 | mg |  |
| Density of wood (Mota version 5, 2013) | 400 | 400 | 400 | mg/cm³ | 0.4 g/cm³ |
| Volume of the dust (6 h) | 0.094 | 0.09 | 0.09 | cm³ |  |
| Amount of a.s. on treated wood | 0.172 | 0.534 | 0.076 | mg/cm³ |  |
| Total amount of a.s. in dust (6 h) | 1.61E-02 | 5.01E-02 | 7.16E-03 | mg/d |  |
| Considering a body weight of 60 kg (worker) | 2.68E-04 | 8.35E-04 | 1.19E-04 | mg/kg bw/d |  |
| **Combined dermal and inhalation exposure (worker)** | **6.25E-04** | **1.07E-03** | **3.28E-04** | **mg/kg bw/d** |  |
| **AELlong-term** | **0.04** | **0.20** | **0.05** | **mg/kg bw/d** |  |
| **% AELlong-term (worker)** | **1.56** | **0.53** | **0.66** | **%** |  |

**Appendix 11**

Scenario 4.1.2. **Sawing and sanding treated wood by general public**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Calculation** | | | | |
| **Active substance** | **Propiconazol** | **IPBC** | **Permethrin** | **Unit** |  |
| Application rate of product | **350** | | | ml/m² |  |
| Density of product | 0.82 | | | g/ml | acc. to MSDS |
| Concentration of a.s. in product | 0.45 | 1.4 | 0.2 | % |  |
| Amount of a.s. on treated wood | **0.129** | **0.402** | **0.057** | **mg/cm²** |  |
| Amount of a.s. in 1 cm outer layer | 0.129 | 0.402 | 0.057 | mg/cm³ |  |
| Volume of wooden post | 4000 | 4000 | 4000 | cm³ | 4 x 4 x 250 [cm] |
| Untreated inner core of post | 992 | 992 | 992 | cm³ | 2 x 2 x 248 [cm] |
| Volume of the outer 1cm layer | 3008 | 3008 | 3008 | cm³ |  |
| Amount of a.s. in the volume of the outer 1 cm layer | 0.172 | 0.534 | 0.076 | mg/cm³ |  |
| Amount of a.s. on the surface of treated wood (conservative assumption that the entire retained a.s. is present on the surface) | 0.172 | 0.534 | 0.076 | mg/cm² |  |
| **Dermal exposure** | | | | | |
| Hand area (palms of both hands) (adult) (acc. to HEEG 2013) | 410 | 410 | 410 | cm² |  |
| Assuming that 20% of hand area will be contaminated (adult). | 82 | 82 | 82 | cm² |  |
| Amount of a.s.on hands (adult) | 14.083 | 43.813 | 6.259 | mg/d |  |
| Transfer coefficient (acc. to TNsG 2007 for dried fluids on rough sawn wood) | 2 | 2 | 2 | % |  |
| Dermal penetration | **7.6** | **1.6** | **10** | % |  |
| Dermal exposure (adult) towards a.s. | 2.14E-02 | 1.40E-02 | 1.25E-02 | mg/d |  |
| Considering a body weight of 60 kg (adult) | 3.57E-04 | 2.34E-04 | 2.09E-04 | mg/kg bw/d |  |
| **Inhalation exposure** | | | | | |
| Generated dust / m³ of sanded treated wood. U.K. WEL of 5 mg/m3 wood dust (8-hour time-weighted average) | 5 | 5 | 5 | mg/m³ |  |
| Duration (general public: adult) | 1 | 1 | 1 | h |  |
| Inhalation rate | 1.25 | 1.25 | 1.25 | m³/h |  |
| Generated dust /h | 6.25 | 6.25 | 6.25 | mg |  |
| Density of wood (Mota version 5, 2013) | 400 | 400 | 400 | mg/cm³ | 0.4 g/cm³ |
| Volume of the dust (1 h) | 0.02 | 0.02 | 0.02 | cm³ |  |
| Amount of a.s. on treated wood | 0.172 | 0.534 | 0.076 | mg/cm³ |  |
| Total amount of a.s. in dust (1 h) | 2  .68E-03 | 8.35E-03 | 1.19E-03 | mg/d |  |
| Considering a body weight of 60 kg (general public: adult) | 4.47E-05 | 1.39E-04 | 1.99E-05 | mg/kg bw/d |  |
| **Combined dermal and inhalation exposure (general public: adult)** | **4.01E-04** | **3.73E-04** | **2.29E-04** | **mg/kg bw/d** |  |
| **AELshort-term** | **0.3** | **0.35** | **0.5** | **mg/kg bw/d** |  |
| **% AELshort-term (general public: adult)** | **0.134** | **0.107** | **0.046** | **%** |  |

**Appendix 12**

Scenario 4.2. Chewing wood off-cut

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Calculation** | | | | |
| **Active substance** | **Propiconazol** | **IPBC** | **Permethrin** | **Unit** |  |
| Application rate of product | 350 | | | ml/m² |  |
| Density of product | 0.82 | | | g/ml | acc. to MSDS |
| Concentration of a.s. in product | 0.45 | 1.4 | 0.2 | % |  |
| Amount of a.s. on treated wood | **0.129** | **0.402** | **0.057** | **mg/cm²** |  |
| Amount of a.s. in the volume of the outer 1 cm layer | 0.129 | 0.402 | 0.057 | mg/cm³ |  |
| Volume of wooden post | 4000 | 4000 | 4000 | cm³ |  |
| Untreated inner core of post | 992 | 992 | 992 | cm³ |  |
| Volume of the outer 1cm layer | 3008 | 3008 | 3008 | cm³ |  |
| Amount of a.s. in the volume of the outer 1 cm layer | **0.172** | **0.534** | **0.076** | **mg/cm³** |  |
| Volume of the piece of wood | 16 | 16 | 16 | cm³ | 4 cm x 4 cm x 1 cm |
| Amount of a.s. in 1 cm outer layer of the piece of wood | 2.748 | 8.549 | 1.221 | mg |  |
|  |  |  |  |  |  |
| Oral uptake by extraction of a.s. from the wood (acc. to User Guidance (2002)) | 10 | 10 | 10 | % |  |
| Oral exposure towards a.s. considering a body weight of 8 kg (infant) (acc. to HEEG opinion 17 (2013)) | 3.43E-02 | 1.07E-01 | 1.53E-02 | mg/kg bw/d |  |
| **AELshort-term** | **0.3** | **0.35** | **0.5** | **mg/kg bw/d** |  |
| **% AELshort-term (general public: infant)** | **11.45** | **30.53** | **3.05** | **%** |  |

**Appendix 13**

Scenario **4.3. Playing on playground structure outdoors and mouthing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Calculation** | | | |
| **Active substance** | **Propiconazol** | **IPBC** | **Permethrin** | **Unit** |
| Application rate of product | 350 | | | ml/m² |
| Density of product | 0.82 | | | g/ml |
| Concentration of a.s. in product | 0.45 | 1.4 | 0.2 | % |
| Amount of a.s. on treated wood | **0.129** | **0.402** | **0.057** | **mg/cm²** |
| Amount of a.s. in 1 cm outer layer | 0.129 | 0.402 | 0.057 | mg/cm³ |
| Volume of wooden post | 4000 | 4000 | 4000 | cm³ |
| Untreated inner core of post | 992 | 992 | 992 | cm³ |
| Volume of the outer 1cm layer | 3008 | 3008 | 3008 | cm³ |
| Amount of a.s. in the volume of the outer 1 cm layer | 0.172 | 0.534 | 0.076 | mg/cm³ |
| Amount of a.s. on the surface of treated wood (conservative assumption that the entire retained a.s. is present on the surface) | **0.172** | **0.534** | **0.076** | **mg/cm²** |
| **Dermal exposure** | | | | |
| Area of hands - both palms and backs of both hands (infant) (acc. to HEEG opinion 17 (2013)) | 196.8 | 196.8 | 196.8 | cm² |
| Assuming that 20% of hand area will be contaminated (infant). | 39.36 | 39.36 | 39.36 | cm² |
| Amount of a.s. on hands (infant) | 6.76 | 21.03 | 3.00 | mg/d |
| Dislodgeable fraction (acc. to TNsG 2007 for dried objects on wood) | 2 | 2 | 2 | % |
| Dermal penetration | **7.6** | **1.6** | **10** | % |
| Dermal exposure (infant) towards a.s. | 1.03E-02 | 6.73E-03 | 6.00E-03 | mg/d |
| Considering a body weight of 8 kg (infant) (acc. to HEEG opinion 17 (2013)) | 1.28E-03 | 8.41E-04 | 7.51E-04 | mg/kg bw/d |
| **Oral exposure** | | | | |
| Oral uptake after licking of hands (infant/child) (ConsExpo) (50% of the potential dermal exposure) | 50 | 50 | 50 | % |
| Oral exposure (infant) towards a.s. | 6.76E-02 | 2.10E-01 | 3.00E-02 | mg/kg bw/d |
| Consideration of a body weight of 8 kg (infant) (acc. to HEEG opinion 17 (2013)) | 8.45E-03 | 2.63E-02 | 3.76E-03 | mg/kg bw/d |
| **Combined dermal and oral exposure (infant)** | **9.73E-03** | **2.71E-02** | **4.51E-03** | **mg/kg bw/d** |
| **AELlong-term** | **0.04** | **0.20** | **0.05** | **mg/kg bw/d** |
| **% AELlong-term (infant)** | **24.34** | **13.56** | **9.01** | **%** |

**Appendix 14**

Scenario 4.4. Inhalation of volatilized residues

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Calculation** | | | | |
| **Active substance** | **Propiconazol** | **IPBC** | **Permethrin** | **Unit** |  |
| Vapour pressure of a.s. | 5.6E-05 | 1.40E-03 | 2.155E-06 | Pa |  |
| MW of a.s. | 342.2 | 281.1 | 391.29 | g/mol |  |
| Gas constant \* Temperature | 2436.15 | 2436.15 | 2436.15 |  | 8.31451 J/(mol\*K) \* T (293 K) |
| SVC (saturated vapour concentration) (acc. to HEEG, 2011) | 7.87E-03 | 1.62E-01 | 3.46E-04 | mg/m³ | (317.41 g/mol \* 4.1\*10-7 Pa) / (8.31451 J/(mol\*K) \* T (293 K) \* 1000) |
| IR (inhalation rate) of infant | 5.4 | 5.4 | 5.4 | m³ / 24 h |  |
| IR of child | 12 | 12 | 12 | m³ / 24 h |  |
| IR of adult | 16 | 16 | 16 | m³ / 24 h |  |
| Body weight of 8 kg (infant) | 5.31E-03 | 1.09E-01 | 2.34E-04 | mg/kg bw /d |  |
| Body weight of 23.9 kg (child) | 3.95E-03 | 8.11E-02 | 1.74E-04 | mg/kg bw /d |  |
| Body weight of 60 kg (adult) | 2.10E-03 | 4.31E-02 | 9.23E-05 | mg/kg bw /d |  |
| **AELlong-term** | **0.04** | **0.20** | **0.05** | **mg/kg bw/d** |  |
| **% AELlong-term (infant)** | **13.27** | **54.52** | **0.47** | **%** |  |
| **% AELlong-term (child)** | **9.87** | **40.55** | **0.35** | **%** |  |
| **% AELlong-term (adult)** | **5.24** | **51.54** | **0.18** | **%** |  |

### Environmental Risk Assessment

**Appendix 1**



**Appendix 2**

**Groundwater assessment using the model FOCUS PEARL (Update PAR\_Koranol Holzbau Grund\_Appendix 2\_groundwater report\_2019-01-11)**



## New information on the active substance

Not applicable

## Residue behaviour

Not applicable

## Summaries of the efficacy studies (B.5.10.1-xx)

Please refer to IUCLID

## Confidential annex

Please refer to the separate document

## Other

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1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)
3. [↑](#footnote-ref-3)