

**Committee for Risk Assessment**  
**RAC**

**Opinion**

proposing harmonised classification and labelling  
at EU level of

**allyl methacrylate; 2-methyl-2-propenoic acid  
2-propenyl ester**

**EC Number: 202-473-0**

**CAS Number: 96-05-9**

CLH-O-0000006957-57-01/F

**Adopted**

**18 March 2021**



## **OPINION OF THE COMMITTEE FOR RISK ASSESSMENT ON A DOSSIER PROPOSING HARMONISED CLASSIFICATION AND LABELLING AT EU LEVEL**

In accordance with Article 37 (4) of Regulation (EC) No 1272/2008, the Classification, Labelling and Packaging (CLP) Regulation, the Committee for Risk Assessment (RAC) has adopted an opinion on the proposal for harmonised classification and labelling (CLH) of:

**Chemical name:** allyl methacrylate; 2-methyl-2-propenoic acid 2-propenyl ester

**EC Number:** 202-473-0

**CAS Number:** 96-05-9

The proposal was submitted by **Austria** and received by RAC on **3 February 2020**.

In this opinion, all classification and labelling elements are given in accordance with the CLP Regulation.

### **PROCESS FOR ADOPTION OF THE OPINION**

**Austria** has submitted a CLH dossier containing a proposal together with the justification and background information documented in a CLH report. The CLH report was made publicly available in accordance with the requirements of the CLP Regulation at <http://echa.europa.eu/harmonised-classification-and-labelling-consultation/> on **24 February 2020**. Concerned parties and Member State Competent Authorities (MSCA) were invited to submit comments and contributions by **24 April 2020**.

### **ADOPTION OF THE OPINION OF RAC**

Rapporteur, appointed by RAC: **Gerlienke Schuur**

The opinion takes into account the comments provided by MSCAs and concerned parties in accordance with Article 37(4) of the CLP Regulation and the comments received are compiled in Annex 2.

The RAC opinion on the proposed harmonised classification and labelling was adopted on **18 March 2021** by **consensus**.



Classification and labelling in accordance with the CLP Regulation (Regulation (EC) 1272/2008)

|   | Index No     | Chemical name   | EC No     | CAS No  | Classification  |                                       | Labelling                      |                                       |                                 | Specific Conc. Limits, M-factors and ATE   | Notes |
|---|--------------|---|-----------|---------|---|---------------------------------------|--------------------------------|---------------------------------------|---------------------------------|--|-------|
|   |              |   |           |         | Hazard Class and Category Code(s)   | Hazard statement Code(s)              | Pictogram, Signal Word Code(s) | Hazard statement Code(s)              | Suppl. Hazard statement Code(s) |  |       |
| Current Annex VI entry                            | 607-246-00-3 | allyl methacrylate 2-methyl-2-propenoic acid 2-propenyl ester | 202-473-0 | 96-05-9 | Flam. Liq. 3<br>Acute Tox. 4 *<br>Acute Tox. 4 *<br>Acute Tox. 3 *<br>Aquatic Acute 1 | H226<br>H302<br>H312<br>H331<br>H400  | GHS02<br>GHS09<br>GHS06<br>Dgr | H226<br>H302<br>H312<br>H331<br>H400  |                                 |  |       |
| Dossier submitters proposal                       | 607-246-00-3 | allyl methacrylate 2-methyl-2-propenoic acid 2-propenyl ester | 202-473-0 | 96-05-9 | <b>Modify</b><br>Acute Tox. 2<br>Acute Tox. 3<br>Acute Tox. 4                         | <b>Modify</b><br>H330<br>H311<br>H302 |                                | <b>Modify</b><br>H330<br>H311<br>H302 |                                 | <b>Add</b><br>inhalation:<br>ATE = 1,47 mg/L (vapours)<br>dermal:<br>ATE = 467 mg/kg bw<br>oral:<br>ATE = 401 mg/kg bw |       |
| RAC opinion                                       | 607-246-00-3 | allyl methacrylate 2-methyl-2-propenoic acid 2-propenyl ester | 202-473-0 | 96-05-9 | <b>Modify</b><br>Acute Tox. 2<br>Acute Tox. 3<br>Acute Tox. 4                         | <b>Modify</b><br>H330<br>H311<br>H302 |                                | <b>Modify</b><br>H330<br>H311<br>H302 |                                 | inhalation:<br>ATE = 1,5 mg/L (vapours)<br>dermal:<br>ATE = 300 mg/kg bw<br>oral:<br>ATE = 400 mg/kg bw                |       |
| Resulting Annex VI entry if agreed by RAC and COM | 607-246-00-3 | allyl methacrylate 2-methyl-2-propenoic acid 2-propenyl ester | 202-473-0 | 96-05-9 | Flam. Liq. 3<br>Acute Tox. 2<br>Acute Tox. 3<br>Acute Tox. 4<br>Aquatic Acute 1       | H226<br>H330<br>H311<br>H302<br>H400  | GHS02<br>GHS09<br>GHS06<br>Dgr | H226<br>H330<br>H311<br>H302<br>H400  |                                 | inhalation:<br>ATE = 1,5 mg/L (vapours)<br>dermal:<br>ATE = 300 mg/kg bw<br>oral:<br>ATE = 400 mg/kg bw                |       |

# GROUNDS FOR ADOPTION OF THE OPINION

## RAC general comment

Allyl methacrylate is manufactured and/or imported in 1000 to 10000 tonnes per year. It is used as monomer in dry or bead polymerisation and as an intermediate.

## HUMAN HEALTH HAZARD EVALUATION

### RAC evaluation of acute toxicity

#### ACUTE TOXICITY – ORAL ROUTE

#### Summary of the Dossier Submitter's proposal

The table below shows the available acute oral studies.

| Species            | LD <sub>50</sub> (mg/kg bw) | Reliability (DS) | Study | Remark   |
|--------------------|-----------------------------|------------------|-------|--|
| rat (=10 per dose) | 470 (males)                 | 3                | 1975  | Similar to OECD TG 401<br>Dosing 157, 313, 625, 1250 mg/kg bw;<br>Mortalities: 0/10, 2/10, 7/10, 10/10 |
| rat (=5 per dose)  | 401 (males)                 | 3                | 1969  | Similar to OECD TG 401   |
| rat                | 421 (sex not specified)     | 4                | 1981  |  |
| rat                | 70 (males)<br>148 (females) | 4                | 1990  |  |
| mouse              | 57 (males)<br>184 (females) | 4                | 1990  |  |

All studies show deficiencies (no information on doses, application, vehicle), however, the available information is considered adequate for concluding on harmonized classification and on ATE value. Amongst the available data, the two most reliable results (LD<sub>50</sub> of 470 and 401 mg/kg bw) correspond to category 4. These two studies in rats were performed in a manner similar to current guidelines, but without information on the purity of the substance and administration (both studies 1975, 1969), dosing or vehicle (1969).

The DS proposed to classify allyl methacrylate as Acute Tox. 4; H302 with an ATE value of 401 mg/kg bw.

#### Comments received during consultation

One MSCA agreed with the proposal as Acute Tox. 4. If the study from 1975 is indeed of better quality, then this MSCA considered that the ATE could be set at 470 mg/kg bw.

Another MSCA was surprised that the two most recent studies (1990) are the least detailed. If no more information is provided by the registrant, then the preference is to use the lowest LD<sub>50</sub> available and classify as Acute Tox. 3, with an ATE value of 57 mg/kg bw.

The third MSCA supported classification as Acute Tox. 4 with an ATE value of 401 mg/kg bw.

IND agreed with the proposed classification.

The DS responded that the ATE of 401 mg/kg bw is preferred as this lower value is supported by study results from secondary sources with LD<sub>50</sub> values ranging from 57-421 mg/kg bw. The DS disagreed on using the LD<sub>50</sub> of 57 mg/kg bw as this study is only available in a two page translation of several studies (the study original language is Russian). Information on strain, number of animals and dosing is missing.

### Assessment and comparison with the classification criteria

Among the five studies available, three studies (1981, 1990, 1990) contain no information regarding guideline, GLP, purity, strain, sex, group size, dose levels, application or vehicle. Resulting LD<sub>50</sub>s range from 57 to 421 mg/kg bw. The other two studies (1975, 1969; Klimisch score 3) are performed similar to OECD TG 401, though are also somewhat limited; no GLP, purity not known, dose levels and vehicle (1969 study), application (1975) not specified. Nevertheless, the 1975 and 1969 studies are considered the most reliable. The two most reliable studies result in LD<sub>50</sub> values of 401 and 470 mg/kg bw leading to a classification as Acute Tox. 4 (300 < LD<sub>50</sub> ≤ 2000 mg/kg bw).

The lowest LD<sub>50</sub> value of 401 mg/kg bw results in a (rounded off) ATE of 400 mg/kg bw.

RAC concludes that allyl methacrylate meets the criteria for cat 4 (300 < ATE ≤ 2 000 mg/kg bw) and should be classified as **Acute Tox. 4; H302 (Harmful if swallowed) with an ATE of 400 mg/kg bw.**

### ACUTE TOXICITY – DERMAL ROUTE

#### Summary of the Dossier Submitter’s proposal

The table below shows the available acute dermal studies.

| Species                                   | LD <sub>50</sub> (mg/kg bw) | Reliability (DS) | Study | Remarks                                       |
|---|-----------------------------|------------------|-------|---|
| rabbit (=4 males per dose)                | 467                         | 3                | 1969  | Similar to OECD TG 402; occlusive application |
| rabbit (sex and group size not specified) | 210                         | 4                | 1982  |   |

Both studies show deficiencies, however, the available information is considered adequate for concluding on harmonized classification and ATE value. There are no experimental details on the study from 1982. The 1969 study results in an LD<sub>50</sub> value, which corresponds to category 3 according to the criteria for acute dermal toxicity (200 – 1000 mg/kg bw).

The DS proposed to classify allyl methacrylate as Acute Tox. 3; H311 with an ATE value of 467 mg/kg bw.

#### Comments received during consultation

Three MSCAs agreed with the classification as Acute Tox. 3.

One MSCA agreed with the proposed ATE of 467 mg/kg bw. A second MSCA proposed to use the lowest LD<sub>50</sub> of 210 mg/kg bw (derived from the study with a reliability score of 4). A third MSCA proposed to choose the generic ATE of 300 mg/kg bw.

In response to this latter comment, the DS considered the generic ATE as more appropriate based on the limited reliability of both studies and the evidence from the second study.

IND agreed with the proposed classification.

### Assessment and comparison with the classification criteria

With regard to the study from 1982, no experimental details are available. Classification is based on the study from 1969, performed similar to OECD TG 402, but without information on purity, dose levels and vehicle. The resulting LD<sub>50</sub> of 467 mg/kg bw results in a classification (200 < LD<sub>50</sub> ≤ 1000 mg/kg bw) as Acute Tox. 3.

The generic ATE value of 300 mg/kg bw is selected because of the limited reliability of both studies.

RAC concludes that allyl methacrylate meets the criteria for cat 3 (200 < LD<sub>50</sub> ≤ 1000 mg/kg bw) and should be classified as **Acute Tox. 3; H311 (Toxic in contact with skin) with an ATE of 300 mg/kg bw.**

### ACUTE TOXICITY – INHALATION ROUTE

#### Summary of the Dossier Submitter's proposal

The table below shows the available acute inhalation studies.

| Species                    | LC <sub>50</sub> (mg/L)       | Reliability (DS) | Study | Remarks  |
|----------------------------|-------------------------------|------------------|-------|--|
| rat (= 5 per dose and sex) | 1.47 (sexes combined)         | 1                | 1999  | OECD TG 403/GLP; 0, 1.02, 2.13 mg/L  |
| rat (=5 per dose and sex)  | 1.6 (sexes combined)          | 2                | 1997  | Equivalent to OECD TG 403; 0, 210, 300, 350 ppm (converted according CLP guidance 0 - 1.08 - 1.55 - 1.70 mg/L) |
| rat                        | 1.8 (males)<br>2.65 (females) | 4                | 1990  | Exposure duration not specified  |
| mouse                      | 5.5 (males)<br>10.0 (females) | 4                | 1990  | Exposure duration not specified  |

A GLP conform and guideline study in rats is available for allyl methacrylate. This study is considered fully reliable and adequate to serve as basis for classification and determined a 4h LC<sub>50</sub> of 1.47 mg/L (1999). This is supported by the 1997 study, which is of nearly equal quality and determined a 4h-LC<sub>50</sub> of 1.6 mg/L. These 4h LC<sub>50</sub> values correspond to a category 2 according to the criteria for acute inhalation toxicity, i.e. > 0.5 and ≤ 2 mg/L (4h exposure). The ATE is based on the most reliable study which also corresponds to the lowest LC<sub>50</sub> value of 1.47 mg/L.

The DS proposed to classify allyl methacrylate as Acute Tox. 2; H330 with an ATE value of 1.47 mg/L (vapours).

#### Comments received during consultation

One MSCA agreed with the proposal as Acute Tox. 2. It was noted that in the 1999 study, the tested concentrations induce either no mortality or full mortality. However, the LC<sub>50</sub> is supported by the 1997 study. ATE is supported. The other two MSCAs are in support of Acute Tox. 2 and the ATE of 1.47 mg/L.



IND agreed with the proposed classification.

### **Assessment and comparison with the classification criteria**

Two reliable studies in rats result in 4h LC<sub>50</sub> values of 1.47 and 1.6 mg/L. The LC<sub>50</sub> values result in a classification ( $0.5 < 4h LC_{50} \leq 2$  mg/L) as Acute Tox. 2. The ATE value is based on the lowest 4h LC<sub>50</sub> of 1.47 mg/L, and rounded off to 1.5 mg/L. It is however noted that in this 1999 study only 0% and 100% responses were obtained. The LC<sub>50</sub> is considered equivalent to 1.47 mg/L, the geometric mean of the two concentrations. Nevertheless, the LC<sub>50</sub> is supported by the 1997 study.

RAC concludes that allyl methacrylate meets the criteria for cat 2 ( $0.5 < 4h LC_{50} \leq 2$  mg/L) and should be classified as **Acute Tox. 2; H330 (Fatal if inhaled) with an ATE of 1.5 mg/L.**

### **ANNEXES:**

- Annex 1 The Background Document (BD) gives the detailed scientific grounds for the opinion. The BD is based on the CLH report prepared by the Dossier Submitter; the evaluation performed by RAC is contained in 'RAC boxes'.
- Annex 2 Comments received on the CLH report, response to comments provided by the Dossier Submitter and RAC (excluding confidential information).