Assessment of regulatory needs

Authority: European Chemicals Agency (ECHA)

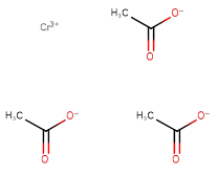
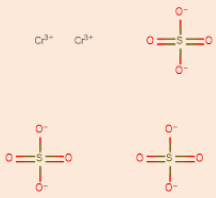
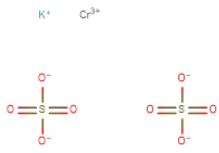
Group Name: Simple chromium compounds

General structure: -

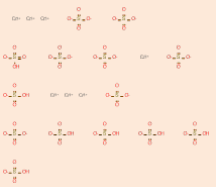
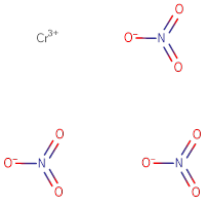
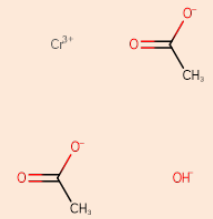
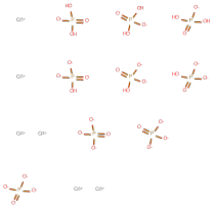
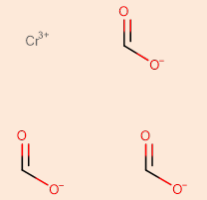
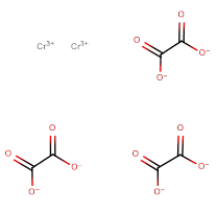
Revision history

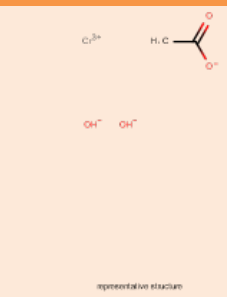
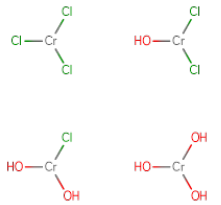
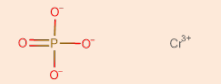
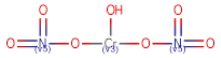
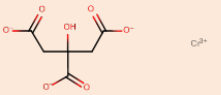
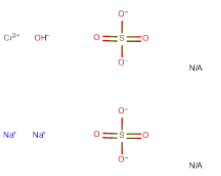
Version	*Date*	*Description*
1.0	8 November 2022	

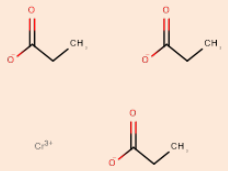
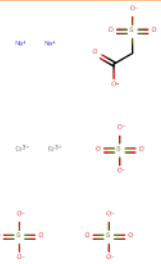
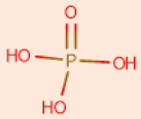
Substances within this group:

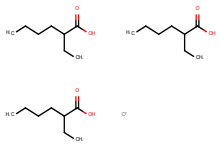
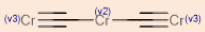
EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
Subgroup 1: soluble substances				
213-909-4	1066-30-4	Chromium triacetate		Full, 10-100
232-137-9	7788-97-8	Chromium trifluoride		Full, 10-100
233-038-3	10025-73-7	Chromium trichloride		Full, 100-1000
233-253-2	10101-53-8	Dichromium tris(sulphate)		Full, not (publicly) available
233-401-6	10141-00-1	Chromium potassium bis(sulphate)		Full, 100-1000

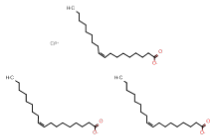
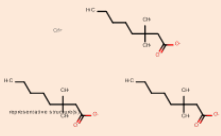
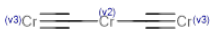
[1] Note that the total aggregated tonnage band may be available on ECHA's webpage at https://echa.europa.eu/information-on-chemicals/registered-substances

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
235-595-8	12336-95-7	Chromium hydroxide sulphate		Full, 10-100
236-921-1	13548-38-4	Chromium trinitrate		Full, 100-1000
241-562-9	17593-70-3	Chromium acetate		Full, 10-100
248-221-3	27096-04-4	Chromium tris(dihydrogen phosphate)		Full, 10-100
248-230-2	27115-36-2	Chromium triformate		Full, not (publicly) available
250-317-5	30737-19-0	Dichromium trioxalate		Full, not (publicly) available

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
254-447-3	39430-51-8	Acetic acid, chromium salt, basic		Full, not (publicly) available
256-852-0	50925-66-1	Chromium chloride, basic		Full, not (publicly) available
261-643-2	59178-46-0	Dichromium tris(hydrogen phosphate)		Full, not (publicly) available
601-791-0	12158-37-1	Chromium hydroxide nitrate (Cr(OH)(NO3)2)		Full, 100-1000
614-626-2	685853-81-0	1,2,3-Propanetricarboxylic acid, 2-hydroxy-, chromium (3+) salt		Full, not (publicly) available
914-129-3		1,2,3-Propanetricarboxylic acid, 2-hydroxy-, chromium (3+) salt		Full, >1000

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
919-722-0		Chromium (III) propionate		Full, not (publicly) available
944-862-4		Reaction mass of disodium sulphonatoacetate and dichromium tris(sulphate)		Full, not (publicly) available
946-354-8		Phosphoric acid, chromium(3+) salt (1:2.5)	 representative structures	Full, not (publicly) available
948-122-1		Reaction mass of water and chromium trichloride		Full, not (publicly) available
Subgroup 2: poorly soluble substances				
215-158-8	1308-14-1	Chromium (III) hydroxide		Full, 10-100
215-160-9	1308-38-9	Chromium (III) oxide		Full, >1000

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
222-357-3	3444-17-5	Chromium tris((2-ethylhexanoate)		Full, not (publicly) available
231-157-5	7440-47-3	Chromium		Full, >1000
234-499-3	12007-16-8	Chromium diboride	No Structure	Full, not (publicly) available
234-576-1	12012-35-0	Trichromium dicarbide		Full, 100-1000
235-002-2	12053-27-9	Dichromium nitride		Full, 10-100
235-790-8	12737-27-8	Chromium iron oxide		Full, >1000

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
244-256-3	21178-63-2	Chromium trioleate		TII or OSII
272-062-9	68683-16-9	Chromium(3+) neodecanoate		Full, not (publicly) available
915-035-5		Reaction mass of heptachromium tricarbide and trichromium dicarbide		Full, 100-1000
Subgroup 3: Unknown solubility				
234-361-2	11118-57-3	Chromium oxide	No Structure	Full, 1-10
235-725-3	12626-43-6	Chromium hydroxide	No Structure	Not registered
238-718-3	14676-93-8	Chromium oxalate	No Structure	Not registered

EC / List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
616-540-0	7789-02-8	Chromic nitrate nonahydrate	No Structure	Not registered
629-714-6	10060-12-5	Chromium (III) chloride hexahydrate	No Structure	Not registered
690-712-3	191358-82-4		No Structure	Not registered

* Subgroups 1: soluble substances; 2: poorly soluble substances; 3: unknown solubility

This table contains also group members that are only notified under the CLP Regulation. However, the list is not necessarily exhaustive.

Contents

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Foreword

The assessment of regulatory needs of a group of substances is an iterative, informal process to help authorities consider the most appropriate way to address an identified concern for a group of substances or a single substance and decide whether further regulatory risk management activities are necessary.

The grouping is mainly based on structural similarity and associations made by the registrants between substances through read-across and category approaches as well as category associations from external sources (e.g. OECD categories)[2]. These methods are different from grouping as defined in Section 1.5 of Annex XI to REACH because the scope and intended use of ECHA's grouping is different. Thus, in this context, grouping does not aim to validate read-across and category approaches according to the Annex XI requirements but rather to support a faster and more consistent approach for regulating chemicals and avoid regrettable substitution.

The focus of the assessment is largely based on information available in the registration dossiers and on properties requiring regulatory risk management action at EU level[3]. The information reported on uses is from the registration dossiers (IUCLID) and is used as a proxy for assessing how widespread uses are and whether potential for exposure to humans and releases to the environment can be expected. The chemical safety reports are not necessarily consulted and no quantitative exposure assessment is performed at this stage.

The outcome of these assessments are proposals for immediate (the first action) and subsequent regulatory action(s), including the foreseen ultimate regulatory action (last foreseen regulatory action) to address the identified concern(s) in case the potential hazards are confirmed. For example, further data generation through compliance check is suggested as a first action, to confirm the identified hazard.

Where hazards are confirmed, regulatory risk management actions could be considered for the whole group, for a subgroup or for individual substances within the group. The robustness of the group depends on the stage of assessment and the level of certainty this stage requires. For example, the needs for grouping under restriction may differ from the needs for grouping for the purpose of harmonised classification. Group membership is reconsidered accordingly throughout the iterative assessment of regulatory needs, for example, after further information is generated and the hazard has been clarified or when new insights on uses and risks are available.

The assessment of regulatory needs in itself does not represent a regulatory action, but rather a preparatory step to consider further possible regulatory actions at the level of individual substances or groups/subgroups of substances.

[2] Working with Groups - ECHA (europa.eu)

[3] Regarding hazard properties the focus is for instance on CMR (carcinogenic, mutagenic and/or toxic to reproduction), sensitiser, ED (endocrine disruptor), PBT/vPvB or equivalent (e.g. substances being persistent, mobile and toxic), aquatic toxicity hazard endpoints and therefore only those are reflected in the report. This does not mean that the substances do not have other known or potential hazards. In some specific cases, ECHA may consider additional hazards (e.g. neurotoxicity, STOT RE).

Publication of ARNs makes it easier for companies to follow the latest status of their substances of interest, anticipate potential regulatory actions and make strategic choices in their chemicals portfolio.

For more information on assessments of regulatory needs please consult ECHA's website[4].

[4] https://echa.europa.eu/understanding-assessment-regulatory-needs

Glossary

ARN	Assessment of Regulatory Needs
CCH	Compliance Check
CLH	Harmonised classification and labelling
CMR	Carcinogenic, mutagenic and/or toxic to reproduction
DEv	Dossier evaluation
ED	Endocrine disruptor
NONS	Notified new substances
OEL	Occupational exposure limit
OSII or TII	On-site isolated intermediate or transported isolated intermediate
PBT/vPvB	Persistent, bioaccumulative and toxic / very persistent and very bioaccumulative
PMT/vPvM	Persistent, mobile, and toxic / very persistent and very mobile
RDT	Repeated dose toxicity
RMOA	Regulatory management options analysis
RRM	Regulatory risk management
SEv	Substance evaluation
STOT RE	Specific target organ toxicity, repeated exposure
SVHC	Substance of very high concern
TPE	Testing proposal evaluation

1 Overview of the group

Explanations on the scope of this assessment is available in the foreword to this document. Please read it carefully before going through the report.

ECHA has grouped together structurally similar substances based on the presence of Chromium.

The group consists of 38 substances including chromium metal and simple trivalent chromium compounds such as chromium boride, carbide, nitride, oxides and hydroxides as well as organic and inorganic salts. Organic chromium salts include carboxylates as counter-ions. Inorganic chromium salts include chlorides, fluorides, phosphates, sulphates and nitrates. 32 substances are registered with full (article 10) registrations, 1 intermediate and 5 non-registered substances. As flagged in the table listing the substances, some of the substances in this group are soluble, others are poorly soluble and some are of unknown solubility.

According to information on the ECHA website, the substances Chromium (III) oxide (EC 215-160-9), Chromium iron oxide (EC 235-790-8) and Chromium potassium bis(sulphate) (EC 233-401-6) are known to exist as nanoparticles.

Based on information reported in the REACH registration dossiers, the substances in the group are commonly used in applications such as metal and non-metal surface treatment, coatings and paints, thinners, paint removes, leather treatment, polymer preparations and compounds, adhesives, sealants and ink and toners. In these applications, uses by professional workers and consumers are sometimes reported. In addition, article service life is often relevant (either via the presence of the substances or of their dissolution products in the manufactured/treated article). Therefore, these uses can be considered widespread with a potential for exposure and releases.

Other commonly reported uses/applications are as intermediate, products such as ph-regulators, flocculants, precipitants, neutralisation agents or as laboratory chemicals, mostly in industrial setting and sometimes in professional setting. In these cases, the potential for exposure and releases is likely to be lower.

Less common applications reported for some substances in the group include fillers, putties, plasters, modelling clay, welding and soldering products, flux products, base metals and alloys, as well as semiconductors. In these applications, uses by professional workers and/or consumers are sometimes reported. In addition, article service life is often relevant (either via the presence of the substances or of their dissolution products in the article manufactured/treated). Although these uses are less frequently reported, they can be considered widespread with a potential for exposure and releases.

One substance (EC 244-256-3) is currently registered as intermediate only. Its chemical structure is such that it is unlikely to be used as an alternative for any of the other substances in this group.

Five substances of the group are not registered but have been included as their chemical structure fit with the group boundaries and classifications have been notified under the CLP Regulation. Their chemical structures are such that they could potentially be used as alternatives for other substances in this group.

According to general knowledge[5], chromium (III) compounds are commonly used for their function as alloying agents, metal surface treating agent, pigments, catalyst, tanning agent, fixative for certain textile dyes, corrosion inhibitor and in the production of pure chromium metal. Some chromium (III) salts are also used as supplement for human use.

Article service life was identified by registrants within the registration dossiers for some substances, but not consistently. However, the presence of the substances or of their dissolution products in articles manufactured/treated cannot be excluded. Therefore, a worst-case approach was taken, and article service life was added (where not reported by the registrant) to substances used in relevant product categories (see Annex 2 for more details).

It should however be noted that this cannot directly be understood as an indication for potential exposure or releases to the environment. This potential will depend on factors such as the presence of the substances or of their dissolution products and their respective valences on the surface of the article or their concentration and migration rate in the matrix. This should be further assessed in conjunction with actions taken on the substances or if/when the registrants update their dossiers with additional information.

One substance (EC 215-160-9) is currently under substance evaluation and eight substances are subject to occupational exposure limit values (see Annex 3 for more details).

[5] Chromium (III) compounds - DCCEEW

2 Conclusions and proposed actions

The conclusions and actions proposed in the table below are based mainly on the REACH and CLP information available at the time of the assessment by ECHA. The conclusions are preliminary suggestions from a screening-level assessment done by ECHA with the aim to propose the next steps for further work (e.g., strengthening of the hazard conclusions, clarification of the uses and/or potential for exposure). The main source of information is the registration dossiers. Relevant public assessments may also be considered. When new information (e.g., on hazards through evaluation processes, or on uses) will become available, the document may be updated, and conclusions and actions revisited.

Table 1: Conclusions and proposed actions

Subgroup name, EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
All group members	Inconclusive hazard for reproductive toxicity for ED For all substances Known or potential hazard for skin sensitisation For all subgroup 1 substances No hazard or unlikely hazard for carcinogenicity, for mutagenicity, for STOT RE For all substances	Potential hazard for aquatic toxicity For all substances except EC 231-157-5, 234-361-2, 234-499-3, 234-576-1, 235-002-2, 235-790-8, and 915-035-5 No hazard or unlikely hazard for PBT/vPvB, for PMT For all substances Inconclusive hazard for ED For all substances	For most substances (except EC 234-361-2, 234-499-3, 244-256-3, 254-447-3 and 944-862-4) IND, PROF uses where potential for exposure is likely (metal and/or non-metal surface treatment, coatings and paints, thinners, paint removes, adhesive and sealants)	**First step** CCH for EC 233-038-3 **Potential last action:** Currently not possible to assess the regulatory needs <u>Justification:</u> Inconclusive hazard for reproductive toxicity and ED

3 Justification for the (no) need for regulatory risk management action at EU level (if hazards confirmed)

Currently not possible to suggest regulatory risk management actions for all substances in this group.

Based on currently available information, it is not possible to assess the need for regulatory risk management as information on hazard is not sufficient to conclude on reproductive toxicity and ED hazards of all substances in the group, regardless of their solubility.

Based on ECHA's assessment of currently available hazard information, the hazard potential for reproductive toxicity and ED is considered inconclusive. The available information on reproductive toxicity might have limitations in terms of doses tested and bioavailability. Therefore, additional information for reproductive toxicity would be needed from more bioavailable, soluble substances using high enough doses. The need for further information for reproductive toxicity for chromium(III) substances has also been noted in the EFSA scientific opinion performed by the Panel on Food Additives and Nutrient Sources added to food (PARNUTS)[6]. In addition, due to the inconclusive reproductive toxicity, no conclusions can be made yet for endocrine disruption, although currently there is no evidence of toxicity in the endocrine system. Inconclusive hazard for endocrine disruption applies also for environment.

Based on ECHA's assessment of currently available hazard information, the hazard potential for carcinogenicity, mutagenicity and specific target organ toxicity (STOT RE) is considered unlikely which is also supported by the conclusions of the EFSA Scientific Opinion on chromium(III) substances[4].

For mutagenicity, mainly negative data from the in vitro mutagenicity study in bacteria (OECD TG 471) or read-across data are available in the registration dossiers. In the EFSA conclusion[4] it was concluded that *in vitro* at high concentrations chromium(III) might cause DNA damage. The in vivo mutagenicity studies with chromium(III) have been consistently negative supporting an unlikely mutagenicity concern.

The repeated dose and long-term toxicity studies in the registration dossiers do not indicate specific effects for target organ toxicity based on the absence of adverse effects at high doses (NOAEL >1000 mg/kg bw/day).

A carcinogenicity study (OECD TG 451) performed with chromium picolinate in rats and mice is available where an increase in preputial gland adenomas was detected. The findings were, however, considered to be equivocal evidence of carcinogenic activity because of the lack of an exposure concentration-response, absence of increased incidences in neoplasms in the corresponding tissue in females, lack of

[6] EFSA Scientific Opinion - EFSA Journal 2010;8(12):1882

progression to carcinoma, and lack of pre-neoplastic lesions. The absence of carcinogenic potential is also supported by negative mutagenicity data and repeated-dose toxicity data indicating no carcinogenic potential.

Chromium (III) oxide (EC 215-160-9) has been under Substance Evaluation by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) and the evaluation report was published in 2022. Substance Evaluation concluded the need for compliance check with a soluble group member to address reproductive toxicity.

Registrants have implemented self-classification for skin sensitisation for all soluble substances (subgroup 1 except EC 233-401-6 and 914-129-3). It is expected that the skin sensitisation hazard is especially relevant for soluble salts of Cr (III). Poorly soluble substances are expected to be poorly absorbed through the skin and therefore typically have a lower skin sensitisation potential.

No action is proposed at the moment to address the skin sensitisation hazard via CLH of the soluble substances although this hazard combined with some of the uses/applications (e.g. textile dyes, and impregnating products, leather treatment products, metal and non-metal surface treatment products) could warrant further regulatory action. This can be revisited once hazard on reproductive toxicity is clarified.

All substances from Subgroup 1 (water soluble or slightly water soluble) show aquatic toxicity and this is reflected in self-classification.

PBT assessment is not required for most of the substances, as they are inorganic salts. For the substances where the counterion is organic, there is enough evidence to conclude that they are not P, B and/or T.

Compliance check is proposed for EC 233-038-3 which is a soluble salt and does not contain a counterion that would impact systemic toxicity to clarify further reproductive toxicity and skin sensitisation hazards. The assessment of regulatory needs for this hazard will be revisited if the hazard is confirmed.

Annex 1: Overview of classifications

Data extracted on 16 March 2023

EC / List No	CAS No	Substance name	Harmonised classification	Classification in registrations
213-909-4	1066-30-4	chromium triacetate	-	Skin Sens. 1B H317
215-158-8	1308-14-1	chromium (III) hydroxide	-	Aquatic Chronic 3 H412
215-160-9	1308-38-9	chromium (III) oxide	-	-
222-357-3	3444-17-5	chromium tris((2-ethylhexanoate)	-	Aquatic Chronic 3 H412
231-157-5	7440-47-3	chromium	-	-
232-137-9	7788-97-8	chromium trifluoride	-	Acute Tox. 3 H301 Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chronic 2 H411
233-038-3	10025-73-7	chromium trichloride	-	Met. Corr. 1 H290 Acute Tox. 4 H302 Skin Sens. 1 H317 Aquatic Chronic 2 H411
233-253-2	10101-53-8	dichromium tris(sulphate)	-	Acute Tox. 4 H302 Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 2 H411
233-401-6	10141-00-1	chromium potassium bis(sulphate)	-	Skin Irrit. 2 H315 Eye Irrit. 2 H319
234-361-2	11118-57-3	Chromium oxide	-	Pyr. Solid 1 H250
234-499-3	12007-16-8	chromium diboride	-	-
234-576-1	12012-35-0	trichromium dicarbide	-	-
235-002-2	12053-27-9	dichromium nitride	-	-
235-595-8	12336-95-7	chromium hydroxide sulphate	-	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Chronic 3 H412
235-790-8	12737-27-8	Chromium iron oxide	-	-

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations
236-921-1	13548-38-4	chromium trinitrate	-	Oxid. Solid 3 H272 Acute Tox. 4 H332 Skin Corr. 1B H314 Eye Damage 1 H318 Skin Sens. 1A H317 Aquatic Chronic 2 H411
241-562-9	17593-70-3	chromium acetate	-	Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Chronic 3 H412
244-256-3	21178-63-2	chromium trioleate	-	Aquatic Chronic 4 H413 [intermediate (active)]
248-221-3	27096-04-4	chromium tris(dihydrogen phosphate)	-	Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 3 H412
248-230-2	27115-36-2	chromium triformate	-	Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 3 H412
250-317-5	30737-19-0	dichromium trioxalate	-	Acute Tox. 4 H302 Skin Sens. 1 H317 Aquatic Chronic 3 H412
254-447-3	39430-51-8	Acetic acid, chromium salt, basic	-	Skin Sens. 1B H317
256-852-0	50925-66-1	Chromium chloride, basic	-	Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chronic 3 H412
261-643-2	59178-46-0	dichromium tris(hydrogen phosphate)	-	Acute Tox. 4 H302 Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 2 H411
272-062-9	68683-16-9	chromium(3+) neodecanoate	-	Skin Sens. 1B H317
601-791-0	12158-37-1	chromium hydroxide nitrate	-	Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 3 H412
614-626-2	685853-81-0	614-626-2	-	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Chronic 2 H412
914-129-3	39380-78-4	Reaction mass of chromium (+ 3) hydroxide	-	Acute Tox. 4 H332

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations
		sulfate and sodium sulfate		
915-035-5	-	Reaction mass of heptachromium tricarbide and trichromium dicarbide	-	-
919-722-0	85561-43-9	chromium propionate	-	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Chronic 3 H412
944-862-4	-	Reaction mass of dichromium tris(sulphate) and disodium sulphonatoacetate	-	Acute Tox. 4 H302 Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 2 H411
946-354-8	-	Cr(III) reaction products of phosphoric acid, chromium trioxide and hydrogen peroxide	-	Skin Sens. 1 H317
948-122-1	-	Reaction mass of water and chromium trichloride	-	Acute Tox. 4 H302 Skin Corr. 1 H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 2 H411
235-725-3	12626-43-6	chromium hydroxide	-	- (Not registered)
238-718-3	14676-93-8	chromium oxalate	-	- (Not registered)
616-540-0	7789-02-8	chromium nitrate nonahydrate	-	- (Not registered)
629-714-6	10060-12-5	Chromium (III) chloride hexahydrate	-	- (Not registered)
690-712-3	191358-82-4	-	-	- (Not registered)

(*) the number in brackets indicates the number of notifications received. Each notification can represent a group of notifiers, therefore the number may differ from the C&L inventory which displays number of notifiers.

Annex 2: Overview of uses based on information available in registration dossiers

Data extracted on 16 March 2023

Formulation: For the use of some substances in some applications, only the formulation life cycle stage was reported. As no supporting information was provided to justify this, a realistic worst-case approach was taken, and "industrial" life cycle stage was added.

Article service life: The solubility of the substances of this group varies. It is possible that in some use situations, the parent substance is unlikely to end-up in articles manufactured or treated with the substance. However, if it is possible that its dissolution products end-up in articles, the registrant should report article service life in their dossier.

This is particularly relevant for substances used in applications/uses such as:

- PC 15: Non-metal-surface treatment products
- PC 32: Polymer preparations and compounds
- PC 1: Adhesives, sealants
- PC 9c: Finger paint
- PC 9b: Fillers, putties, plasters, modelling clay
- PC 9a: Coatings and paints, thinners, paint removes
- PC 18: Ink and toners
- PC 26, Paper and board treatment products
- PC 34, Textile dyes, and impregnating products
- PC 23, Leather treatment products
- PC 14, Metal surface treatment products
- PC 38, Welding and soldering products, flux products
- PC 7, Base metals and alloys
- PC 33, Semiconductors

In the dossiers screened, article service life was identified by registrants for some substances/uses, but not consistently. The analysis conducted during the screening exercise did not allow to exclude the presence of the substances or of their dissolution products in articles manufactured/treated. Therefore, a worst-case approach was taken, and article service life was added (where not reported by the registrant) to substances used in the product categories (PC) mentioned above.

It should however be noted that this cannot directly be understood as an indication for potential exposure or potential releases to the environment. This potential will depend on factors such as the presence of the substance on the surface of the article or its concentration and migration rate in the matrix.

Industry should update their registration dossiers and clarify whether these uses should be reported for the substances and if not, bring sufficient justification for not considering those uses. For substances where article service life is justified, the registrants should also clarify its relevance in terms of potential for exposure and releases to the environment and, where necessary, provide an exposure assessment. If no additional information is provided at the next iteration of the assessment, those uses will be considered for further regulatory risk management.

Sub-group 1: soluble substances

Main types of applications structured by product or article types	213-909-4	232-137-9	233-038-3	233-253-2	233-401-6	235-595-8	236-921-1	241-562-9	248-221-3	248-230-2	250-317-5	254-447-3	256-852-0	261-643-2	601-791-0	614-626-2	914-129-3	919-722-0	944-862-4	946-354-8	948-122-1
Sub-group	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Products such as ph-regulators, flocculants, precipitants, neutralisation agents	I,	F, I, **P**,			F, I,	F, I	I,		F, I	F, I		I,	F, I		F, I	I,		F, I			
Water treatment chemicals		F,I				F,I			F,I	F,I			F,I		F,I			F,I			
Air care products					I,																
Polishes and wax blends		F, I				F, I,			F, I	F, I			F, I		F, I			F, I			
Non-metal-surface treatment products		F, I			I,	F, I, **A**			F, I, **A**	F, I			F, I, **A**		F, I		F, I, **P**, **A**	F, I			
Metal working fluids							I, **P**,														
Polymer preparations and compounds			I,					F, I, **A**			F, I, **A**	I,				F, I, **A**					
Adhesives, sealants		F, I,				F, I, **A**			F, I, **A**	F, I			F, I, **A**		F, I, **A**			F, I			

Main types of applications structured by product or article types	213-909-4	232-137-9	233-038-3	233-253-2	233-401-6	235-595-8	236-921-1	241-562-9	248-221-3	248-230-2	250-317-5	254-447-3	256-852-0	261-643-2	601-791-0	614-626-2	914-129-3	919-722-0	944-862-4	946-354-8	948-122-1
Coatings and paints, thinners, paint removes		F, I, **A**,				F, I, **A**	I, **A**	F, I, **A**	F, I, **A**	F, I,	F, I, **A**,		F, I, **A**		F, I, **A**	F, I, **P**, **A**		F, I			
Ink and toners		F, I, **A**,						F, I, **P**, **A**			F, I, **P**, **A**					F, I, **P**, **A**					
Paper and board treatment products													I, **A**,								
Textile dyes, and impregnating products													I, **A**								
Leather treatment products		F, I			F, I, **P**, **A**,	F, I, **P**, **A**			F, **P**, **A**	F, I			F, I, **A**		F, **P**,		F, I, **P**, **A**	F, I			
Metal surface treatment products	F, I,	F, I, **P**,	F, I, **P**, **A**	F, I,	F, I, **P**, **A**	F, I, **P**, **A**	F, I, **P**, **A**,		F, I, **P**, **A**	F, I,			F, I, **A**	F, I,	F, I, **P**, **A**		F, I, **P**, **A**,	F, I		F, I, **A**	F, I
Laboratory chemicals		F, I, **P**,	F, I,	F,	I,	F, I, **P**,	I,		F, **P**,	F, I			F, I	F, I	F, **P**,	I,	F, I, **P**	F, I			F, I
Intermediate	I,	I,	I,			I,	I,	I,	I,	I,	I,		I,		I,	I,	I	I,	I		

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Sub-group 2 and 3: poorly soluble substances and substances with an unknown solubility

Main types of applications structured by product or article types	215-158-8	215-160-9	222-357-3	231-157-5	234-499-3	234-576-1	235-002-2	235-790-8	244-256-3	272-062-9	915-035-5	234-361-2	235-725-3	238-718-3	616-540-0	629-714-6	690-712-3
Sub-group	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Products such as ph-regulators, flocculants, precipitants, neutralisation agents	F, I	F, I, **P**, **C**,	F, I,	I,								I,					
Water treatment chemicals	F, I																
Adsorbents		F, I		**P**,													
Explosives				F, I		**C**,											
Perfumes, fragrances				F, I, **P**													
Cosmetics, personal care products		F, I, **P**, **C**		F, I, **A**,													
Polishes and wax blends	F, I																
Non-metal-surface treatment products	F, I, **A**	F, I,		F, I, **P**, **A**		F, I,	F, I, **A**				F, I, **A**						
Lubricants, greases, release products						**C**,											
Metal working fluids				F, I,													
Heat transfer fluids		I,															
Polymer preparations and compounds		F, I, **P**, **A**	F, I,	F, I, **A**				F, I, **A**									

Main types of applications structured by product or article types	215-158-8	215-160-9	222-357-3	231-157-5	234-499-3	234-576-1	235-002-2	235-790-8	244-256-3	272-062-9	915-035-5	234-361-2	235-725-3	238-718-3	616-540-0	629-714-6	690-712-3
Adhesives, sealants	F, I, **A**					**C**, **A**											
Finger paint		F, I, **P**, **C**, **A**															
Fillers, putties, plasters, modelling clay		F, I, **P**, **C**, **A**		F, I, **P**, **A**,		I, **C**, **A**,		F, I, **P**, **A**									
Coatings and paints, thinners, paint removes	F, I, **P**, **A**	F, I, **P**, **C**, **A**	F, I,	F, I, **P**, **A**,		I, **A**	F, I, **A**	F, I, **P**, **A**		F, I, **A**							
Ink and toners	I, **A**	F, I, **P**, **C**, **A**		F, I, **P**, **A**,				F, I, **A**		F, I, **A**							
Paper and board treatment products		I, **A**															
Textile dyes, and impregnating products		F, I, **A**															
Leather treatment products	F, **P**, **A**	F, I, **C**, **A**		F, I, **A**													
Metal surface treatment products	F, I, **P**, **A**	F, I, **C**, **A**		F, I, **P**, **C**, **A**		F, I, **C**, **A**	F, I, **A**				F, I, **A**						
Welding and soldering products, flux products		I, **A**		F, I, **P**, **C**, **A**	I	F, I, **P**, **A**,					F, I, **P**, **A**						

Main types of applications structured by product or article types	215-158-8	215-160-9	222-357-3	231-157-5	234-499-3	234-576-1	235-002-2	235-790-8	244-256-3	272-062-9	915-035-5	234-361-2	235-725-3	238-718-3	616-540-0	629-714-6	690-712-3
Base metals and alloys		F, I, **C**, **A**		F, I, **P**, **C**, **A**		F, I, **C**, **A**,	F, I, **A**				F, I, **A**						
Semiconductors		I, **C**, **A**		F, I, **P**, **A**,		**C**, **A**											
Laboratory chemicals	F, **P**,	F, **P**, **C**,		F, I, **P**, **C**,		I,					I,						
Intermediate	I,	F, I		F, I, **P**		I,			I		I,	I,					
Oil and gas exploration or production products				I,													

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Annex 3: Overview of completed or ongoing regulatory risk management activities

Data extracted on 16 March 2023

EC / List number	RMOA	Authorisation		Restriction*	CLH	Actions not under REACH / CLP
		Candidate list	Annex XIV	Annex XVII	Annex VI (CLP)	
215-160-9				YES		Colorants allowed in cosmetic products (EC No 1223/2009, Annex IV) Occupational exposure limit (EU or Member States)
231-157-5				YES		Substances prohibited in cosmetic products' regulation (EC No 1223/2009, Annex II) Occupational exposure limit (EU or Member States) Scientific Committee on Occupational Exposure Limits (SCOEL) - Opinion
232-137-9						Occupational exposure limit (EU or Member States)
233-038-3						Occupational exposure limit (EU or Member States)
235-595-8						Occupational exposure limit (EU or Member States)
248-221-3						Occupational exposure limit (EU or Member States)
629-714-6						Occupational exposure limit (EU or Member States)
914-129-3						Occupational exposure limit (EU or Member States)

*Some of the broad restriction entries in the Annex XVII of REACH are not represented in the overview, e.g. when the scope of the restriction is defined by its classification or the substance identification is broad (e.g. entries 3, 28-30 and 40).