Assessment of regulatory needs

Authority: European Chemicals Agency (ECHA)

Group Name: Zinc and its simple inorganic compounds

General structure: -

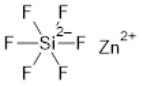
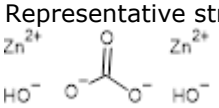
Revision history

Version	*Date*	*Description*
1.0	25 October 2023	

Substances within this group:

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
215-222-5	1314-13-2	Zinc oxide	ZnO	Full, >1000
215-226-7	1314-22-3	Zinc peroxide	ZnO_2	C&L notification
215-244-5	1314-84-7	Trizinc diphosphide	Zn_3P_2	C&L notification
215-251-3	1314-98-3	Zinc sulphide	ZnS	Full, >1000
222-477-6	3486-35-9	Zinc carbonate	$ZnCO_3$	Full, not (publicly) available
226-076-7	5263-02-5	Di[carbonato(2-)]hexahydroxypentazinc	$Zn_5(CO_3)_2(OH)_6$	OSII or TII
231-175-3	7440-66-6	Zinc	Zn	Full, >1000
231-203-4	7446-26-6	Dizinc pyrophosphate	$Zn_2P_2O_7$	Full, not (publicly) available
231-592-0	7646-85-7	Zinc chloride	$ZnCl_2$	Full, >1000
231-718-4	7699-45-8	Zinc bromide	$ZnBr_2$	Full, >1000
231-793-3	7733-02-0	Zinc sulphate	$ZnSO_4$	Full, >1000
231-943-8	7779-88-6	Zinc nitrate	$Zn(NO_3)_2$	Full, 100-1000
231-944-3	7779-90-0	Trizinc bis(orthophosphate)	$Zn_3(PO_4)_2$	Full, >1000
232-001-9	7783-49-5	Zinc fluoride	ZnF_2	Cease manufacture
237-057-8	13597-65-4	Dizinc orthosilicate	Zn_2SiO_4	Full, not (publicly) available
237-067-2	13598-37-3	Zinc bis(dihydrogen phosphate)	$Zn(H_2PO_4)_2$	Full, >1000
237-537-7	13827-02-6	Potassium trifluorozincate	$KZnF_3$	Full, not (publicly) available

[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 [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
240-894-1	16871-71-9	Zinc hexafluorosilicate	$ZnSiF_6$ 	Full, not (publicly) available
243-814-3	20427-58-1	Zinc hydroxide	$Zn(OH)_2$	Full, 10-100
257-467-0	51839-25-9	Carbonic acid, zinc salt, basic	$Zn(x/2+y).(OH)x.(CO_3)y$ Representative structure: 	Full, >1000
264-938-4	64539-51-1	Tetrazinc trioxide phosphite	Not (publicly) available	Full, not (publicly) available
269-103-8	68187-51-9	Zinc ferrite brown spinel	$ZnFe_2O_4$	Full, >1000
271-896-0	68611-47-2	Silicic acid (H4SiO4), zinc salt (1:2), manganese-doped	Zn_2SiO_4:Mn	Full, not (publicly) available
271-904-2	68611-70-1	Zinc sulfide (ZnS), copper chloride-doped	ZnS:Cu,Cl	Full, 100-1000
271-905-8	68611-71-2	Zinc sulfide (ZnS), silver chloride-doped	ZnS:Ag,Cl	Full, not (publicly) available
272-554-3	68877-27-0	Zinc sulfide (ZnS), manganese-doped	ZnS:Mn	Full, not (publicly) available
600-255-3	10196-18-6	(nitrooxy)zincio nitrate hexahydrate	$Zn(NO_3)_2{\cdot}6H_2O$	C&L notification
616-097-3	7446-20-0	Zinc sulfate heptahydrate	$ZnSO_4{\cdot}7H_2O$	C&L notification
671-668-4	13986-18-0	Zinc fluoride tetrahydrate	$ZnF_2{\cdot}4H_2O$	C&L notification
686-854-0	12539-71-8	Zinc carbonate hydroxide	$Zn_3(CO_3)O_2{\cdot}3H_2O$	C&L notification
910-427-2	-	Reaction mass of zinc oxide and zinc peroxide	ZnO ZnO_2	Full, 10-100

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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The author does not accept any liability with regard to the use that may be made of the information contained in this document. Usage of the information remains under the sole responsibility of the user. Statements made or information contained in the document are without prejudice to any further regulatory work that ECHA, the Member States or other regulatory agencies may initiate at a later stage. Assessments of regulatory needs and their conclusions are compiled on the basis of available information and may change in light of newly available information or further assessment.

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
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 zinc.

The group consists of 31 substances including zinc metal and simple inorganic zinc compounds (mostly salts), with zinc present in oxidation state +2. The compounds include zinc hydroxide, (per)oxides, halides, sulphides, sulphates, nitrates, phosphates, phosphite, phosphide, carbonates and silicates. 23 substances are registered with full (article 10) registrations and one with an intermediate registration. For one substance there has been cease of manufacture, and in addition, there are 6 non-registered substances which have C&L notifications.

Nanoform-related information has been reported in the registration dossiers for zinc oxide, EC: 215-222-5. It should be noted that substances ECs: 215-222-5, 231-175-3, 231-592-0, 231-793-3 and 231-944-3 have been assessed under the Existing Substances regulation (The Council Regulation (EEC) No 793/93) where it was concluded there is no risk for consumers or workers for the current uses while environmental risks mainly to aquatic environment should be handled by existing legislations (Directive 2008/1/EC and Directive 2000/60/EC). In addition, the substances ECs:215-222-5, 231-175-3, 231-592-0, 231-793-3, 616-097-3 are included under restriction 75 concerning tattooing inks.

Based on information reported in the REACH registration dossiers, the substances in the group have been registered as high tonnage substances, have widespread industrial, professional and consumer uses reported in 40 different product categories. In addition, there is article service life in various product categories such as polymers, paper, coatings and surface treatment products, polishes etc. with a potential for exposure. Nonetheless, there are uncertainties to the number of actual uses due to possible overreporting. According to the number of substances registered for specific product categories, the main uses of the substances in this group are: coatings, laboratory chemicals, ink and toners and polymers where the substances are used e.g. as pigment and/or corrosion inhibitor. There is high potential for exposure for workers and consumers, and high potential for releases to the environment from e.g. uses in coatings and washing products.

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.

Subgroup name, EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
231-718-4	Known or potential hazard for reproductive toxicity for ED for STOT RE for skin sensitisation	Known or potential hazard for ED Known or potential hazard for aquatic toxicity	Widespread industrial and professional uses in process regulators, water treatment and heat transfer fluids with potential exposure for workers.	**First step:** CLH **Potential next steps (if hazard confirmed after data generation):** Restriction <u>Justification:</u> The harmonised classification as CMR 1 – reproductive toxicity would trigger the restriction entry 30 and by that ensure that the substances are not included in consumer mixtures above the limits specified in that entry. The reported professional uses are widespread (at many sites and many users) with relatively low levels of operational controls and

Subgroup name, EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
				risk management measures but with often frequent exposures with a long duration.
215-222-5 bulk and nano form 215-251-3 222-477-6 226-076-7 231-175-3 231-203-4 231-592-0 231-793-3 231-943-8 231-944-3 232-001-9* 237-057-8 237-067-2 237-537-7 240-894-1 243-814-3 257-467-0 264-938-4 269-103-8 271-896-0 271-904-2, 271-905-8, 272-554-3, 910-427-2	No hazard or unlikely hazard for carcinogenicity for mutagenicity for reproductive toxicity (except for 215-222-5 nanoform – inconclusive) for STOT RE (except 237-537-7, STOT RE 1) for skin sensitisation	Known or potential hazard for aquatic toxicity	Widespread and wide and dispersive industrial, professional and consumer uses and article service life in 40 product categories. High potential for exposure to workers and consumers from e.g. coatings, washing and cleaning products, finger paints, fillers and putties. High potential of releases to the environment from e.g. washing and cleaning products, plant protection products, fertilisers and cosmetics.	CCH ECs: 215-251-3; 237-537-7; 269-103-8 No action for the rest group members **Currently no need for EU RRM** <u>Justification</u>: Overall, no or unlikely hazard that would lead to concern for the reported uses.

Subgroup name, EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
215-226-7 215-244-5 600-255-3 616-097-3 671-668-4 686-854-0	No hazard or unlikely hazard for carcinogenicity for mutagenicity for reproductive toxicity for ED	Known or potential hazard for aquatic toxicity	No registered uses (C&L notification)	No action **Currently no need for EU RRM** <u>Justification:</u> There are no registered uses for these substances thus potential exposure is considered negligible.

* = inactive

3 Justification for the need for regulatory risk management action at EU level

Based on currently available information, there is a need for (further) EU regulatory risk management – restriction for reproductive toxicity and/or ED hazards due to the widespread use and potential for exposure for professional workers of the substance EC: 231-718-4 ($ZnBr_2$) in the group.

Based on ECHA's assessment of currently available hazard information, potential hazards were identified for human health. The available information indicates (as mentioned above) that bromide salts have the potential for neurotoxicity and reproductive toxicity as well as effects via lactation. This is based on the RAC opinion (adopted on 8 October 2020[5]) where ammonium bromide (EC 235-183-8) was classified for Repr. 1B (H360FD), Lact. (H362), STOT SE 3 (H336), STOT RE 1 (H372, nervous system) and Eye Irrit. 2 (H319). The classification applies from 23 November 2023[6]. Currently, no self-classification of $ZnBr_2$ as Repro 1B and/or STOT RE 1 is applied. As for the environment, the substance is currently self-classified as Aquatic Chronic 2.

Bromide salts potentially also have ED properties as bromide may displace iodine in the thyroid and cause endocrine (thyroid) effects that might be relevant for humans. In addition, the Biocidal product committee (BPC) has concluded that the substance 2,2-dibromo-2-cyanoacetamide (DBNPA) is an endocrine disruptor for human health and the environment due to the bromide ion. Based on the information available within the BPC opinion[7] and the background documents, there is currently no need to generate further data to clarify the concern for endocrine disruption and there is sufficient information to support this conclusion.

However, several uncertainties regarding the setting of a threshold for these ED properties as well as the natural occurrence and essentiality of bromide have been highlighted within the BPC opinion for DBNPA which are also relevant for the bromide salts, incl. $ZnBr_2$.

The substance EC: 231-718-4 is registered up to 100 tonnes per year and used by industrial and professional workers as process regulators, in water treatment and heat transfer fluids. In addition, the substance has industrial uses in adsorbents and welding and soldering products, as well as article uses in batteries. From certain uses, such as water treatment, heat transfer fluids, adsorbents and welding and soldering, releases to the environment cannot be excluded (e.g. ERC9a: widespread use of functional fluid (outdoor)). Based on the information in the registrations, uses by professional workers take place in oil and gas industries, likely on-site, which may be considered close to industrial setting. Nonetheless, while exposure to the indicated professional users may be well controlled, based on the information in the registrations, which indicate activities such as 'Chemical production where opportunity for exposure arises' (PROC4), exposure to professional workers cannot be excluded. Moreover, as the uses include 'on-site' activities where sufficient protective measures as requested by the directive

[5] https://echa.europa.eu/documents/10162/61e8d5d7-2ebd-fd02-a9c5-89671c2aef3b

[6] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R0692&from=EN

[7] https://echa.europa.eu/documents/10162/085a4896-b067-bdbc-e38c-8f794e60e4f3

2004/37/EC may not be guaranteed. Thus, due to the high non-threshold hazard of the substance EC 231-718-4, its widespread uses, potential for exposure to professional users and releases to the environment, restriction is proposed in addition to the harmonised classification to ensure safety of indicated professional uses and minimisation of releases to the environment.

The first step of the regulatory risk management should the hazard exist, is the confirmation of hazard via harmonised classification (CLH) as ED ENV and HH, Repro 1B, STOT RE 1 (nervous system), Aquatic Chronic 1 hazard for EC 231-718-4. When preparing the proposals, it may be considered what would be the best way to develop them, for instance whether to make a proposal for the group of substances, to submit them individually or jointly.

CLH

i) will require company level risk management measures (RMM) for workers to be in place; ii) is needed or highly recommended in support of further regulatory processes under REACH; and iii) would lead to generic restriction of the substance(s) in consumer mixtures by means of restriction entry 30.

There is currently an intention from a Member State (SE) to cover the inorganic bromide salts (Potassium Bromide (EC: 231-830-3), Sodium Bromide (EC: 231-599-9), Calcium Bromide (EC: 232-164-6) by group CLH for Repr. 1B, STOT RE 1 (nervous system) and STOT SE 3. It is proposed EC 231-718-4 to be included in the group proposal.

The following professional uses: process regulators, water treatment and heat transfer fluids are expected to be widespread (at many sites and by many users). Professional use is often widespread with relatively low levels of operational controls and risk management measures but with often frequent exposures with a long duration. In addition, professional users may be self-employed and therefore not covered by occupational safety and health (OSH) legislation.

In addition, the use of the most harmful substances by professional workers has been recognised as an area of concern under the European Commission's Chemicals Strategy for Sustainability[8] which aims to extend to professional users under REACH the level of protection granted to consumers.

Therefore, a **restriction of the substance as such or in mixtures (concentration limit in mixtures) used by professionals** is suggested after CLH.

Moreover, potential exposure from articles needs further investigation. The need for restricting substances in articles used by professionals or consumers reported for substance EC 231-718-4 should be considered in the context of the restriction of professional uses.

The substance(s) 231-718-4 has been reported to be used in batteries. The potential for release/exposure from the sealed batteries is considered low. Exposure and release from the production phase of the batteries at industrial sites and from the waste stage might require further investigation. The draft regulation concerning batteries and waste batteries (which will repeal Directive 2006/66/EC and amend Regulation (EU) No 2019/1020) will apply in the future. It is expected

[8] European Commission, *Chemical Strategy for Sustainability Towards a Toxic-Free Environment*, available at https://ec.europa.eu/environment/pdf/chemicals/2020/10/Strategy.pdf

that the need to further regulate this specific use of the substance(s) will be assessed in that context.

Based on currently available information, there is no need for (further) EU regulatory risk management of all the other substances in the group

Based on ECHA's assessment of currently available hazard information, no potential hazards were identified for human health for all the other substances in the group.

The following Zn compounds: Zinc oxide bulk form (EC: 215-222-5), Zinc (EC: 231-175-3), Zinc chloride (EC: 231-175-3) and Zinc sulphate (EC: 231-793-3) have been assessed under the EU Risk Assessment Reports (RAR) developed according to EU Regulation 793/93/EEC (EU RAR, 2004). No CMR/ED properties have been identified, based on zinc. The conclusions are extrapolated to all Zn salts and (per)oxides, listed above, except for ZnS (EC: 215-251-3) and its doped forms (ECs: 271-904-2, 271-905-8, 272-554-3). ZnS is poorly soluble, and the toxicity is likely attributed to the whole compound, rather than the Zn^{2+}. The low toxicity of ZnS is proposed to be evaluated under CCH. Extrapolation of the results to the ZnS-doped substances is foreseen.

For the substance ZnO (EC: 215-222-5), few registrants have reported PbO impurity and self-classified accordingly.

In addition, for ZnO nanoform a Reproduction/ Developmental Toxicity Screening Test (OECD TG 421) in rat, combined with 90-day repeated dose toxicity inhalation study (OECD TG 413) was requested under SEV. The study is still under assessment by the eMSCA, so currently there is no conclusion on the reproductive potential of ZnO nano.

The Zn ion hypothesis is also not relevant for Zn silicates (ECs: 237-057-8, 271-896-0, 240-894-1) and for the fluorinated (EC: 237-537-7, EC: 240-894-1) and Zn ferrite (EC: 269-103-8) compounds.

No CMR, ED, STOT RE and skin sensitisation hazard is identified for the Zn silicates, based on the available studies, performed with the substances.

For the fluorinated members and Zn ferrite, no or unlikely hazard for reproductive toxicity is expected, however there are data gaps identified for PNDT (EC: 237-537-7) and EOGRT (EC: 269-103-8), therefore, CCHs are recommended to request the relevant information. In addition, EC: 237-537-7 induces mutations in mammalian cells in vitro that have not been adequately followed in vivo.

Regarding environmental hazards, based on the information available, the Zn compounds are concluded to be toxic for the aquatic environment and are accordingly self-classified for this hazard except for ZnS (EC: 215-251-3) and its doped forms (ECs: 271-904-2, 271-905-8, 272-554-3) which do not have self-classification.

Since all substances are inorganic, the requirement for PBT/vPvB and PMT assessment does not apply. Based on the available experimental data and the EU risk assessment report[9], bioaccumulation is not considered relevant in the effect assessment for Zn because of the general presence of homeostatic control mechanisms.

[9] European Union Risk Assessment Report: https://echa.europa.eu/documents/10162/d7248de0-eb5b-4a9b-83b9-042c4fd66998

The substances are not expected to be ED for the environment.

Many of the substances in the group have high registered tonnages as well as widespread and wide and dispersive industrial, professional and consumer uses and article service life in 40 product categories. There is high potential for exposure to workers and consumers from e.g. coatings, washing and cleaning products, finger paints, fillers and putties. In addition, there is high potential of releases to the environment from e.g. washing and cleaning products, plant protection products, fertilisers and cosmetics.

According to ECHA's assessment, there is potential over-reporting leading to incorrect uses. In addition, there could be missing uses. Consequently, industry should update their registration dossiers and clarify whether or not the uses reported for these substances are supported. In the next iteration to this assessment of regulatory needs, if no update of the registration dossiers has been submitted, those uses will be considered to be of relevance and if the potential hazard properties confirmed, then further regulatory risk management will be considered.

In conclusion, despite the high potential for exposure and releases to the environment there are no or unlikely hazards that would lead to concern for the reported uses and therefore **no EU wide regulatory actions are proposed** at this stage. The needs for regulatory risk management actions may be re-assessed once generation of data is completed.

Annex 1: Overview of classifications

Data extracted on 28/11/2022.

EC/List number	CAS number	Substance name	Harmonised classification
215-222-5	1314-13-2	Zinc oxide	Index number: 030-013-00-7 Aquatic Acute 1 Statement: H400 Aquatic Chronic 1 Statement: H410
215-226-7	1314-22-3	Zinc peroxide	
215-244-5	1314-84-7	Trizinc diphosphide	Index number: 015-006-00-9 Acute Tox. 2 Hazard Statement: H300 Notes: T (Minimum classification) Water-react. 1 Hazard Statement: H260 Notes: T Aquatic Acute 1 Statement: H400 Additional Info: T Aquatic Chronic 1 Statement: H410 Additional Info: T 100 M-Factor [T]
215-251-3	1314-98-3	Zinc sulphide	
222-477-6	3486-35-9	Zinc carbonate	
226-076-7	5263-02-5	Di[carbonato(2-)]hexahydroxypentazinc	
231-175-3	7440-66-6	Zinc	
231-203-4	7446-26-6	Dizinc pyrophosphate	
231-592-0	7646-85-7	Zinc chloride	Category: STOT SE 3 Class: Specific Target Organ Toxicity - Single Exposure Statement: H335: C>=5% Index number: 030-003-00-2 Acute Tox. 4 Hazard Statement: H302 (Minimum classification) Hazard Category: Skin Corr. 1B Hazard Statement: H314 Aquatic Acute 1 Statement: H400 Aquatic Chronic 1 Statement: H410

EC/List number	CAS number	Substance name	Harmonised classification
231-718-4	7699-45-8	Zinc bromide	
231-793-3	7733-02-0	Zinc sulphate	Index number: 030-006-00-9 Acute Tox. 4 Hazard Statement: H302 (Minimum classification) Hazard Category: Eye Dam. 1 Hazard Statement: H318 Aquatic Acute 1 Statement: H400 Aquatic Chronic 1 Statement: H410
231-943-8	7779-88-6	Zinc nitrate	
231-944-3	7779-90-0	Trizinc bis(orthophosphate)	Index number: 030-011-00-6 Aquatic Acute 1 Statement: H400 Aquatic Chronic 1 Statement: H410
232-001-9	7783-49-5	Zinc fluoride	
237-057-8	13597-65-4	Dizinc orthosilicate	
237-067-2	13598-37-3	Zinc bis(dihydrogen phosphate)	
237-537-7	13827-02-6	Potassium trifluorozincate	
240-894-1	16871-71-9	Zinc hexafluorosilicate	
243-814-3	20427-58-1	Zinc hydroxide	
257-467-0	51839-25-9	Carbonic acid, zinc salt, basic	
264-938-4	64539-51-1	Tetrazinc trioxide phosphite	

EC/List number	CAS number	Substance name	Harmonised classification
269-103-8	68187-51-9	Zinc ferrite brown spinel	
271-896-0	68611-47-2	Silicic acid (H4SiO4), zinc salt (1:2), manganese-doped	
271-904-2	68611-70-1	Zinc sulfide (ZnS), copper chloride-doped	
271-905-8	68611-71-2	Zinc sulfide (ZnS), silver chloride-doped	
272-554-3	68877-27-0	Zinc sulfide (ZnS), manganese-doped	
600-255-3	10196-18-6	(nitrooxy)zincio nitrate hexahydrate	
616-097-3	7446-20-0	Zinc sulfate heptahydrate	Index number: 030-006-00-9 Acute Tox. 4 Hazard Statement: H302 (Minimum classification) Hazard Category: Eye Dam. 1 Hazard Statement: H318 Aquatic Acute 1 Statement: H400 Aquatic Chronic 1 Statement: H410
671-668-4	13986-18-0	Zinc fluoride tetrahydrate	
686-854-0	12539-71-8	Zinc carbonate hydroxide	
910-427-2	-	Reaction mass of zinc oxide and zinc peroxide	

(*) 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 28/11/2022.

Main types of applications structured by product or article types	215-222-5	215-251-3	222-477-6	231-175-3	231-203-4	231-592-0	231-718-4	231-793-3	231-943-8	231-944-3	232-001-9	237-057-8	237-067-2	237-537-7	240-894-1	243-814-3	257-467-0	264-938-4	269-103-8	271-896-0	271-904-2	271-905-8	272-554-3	910-427-2
PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents	F,I,**P**, **C**	F,I,**P**,**C**		F, I, **P**	F	F, I, **P**, **C**	F, I, **P**	F, I, **P**, **C**	F, I	F, I, **P**, **C**			F, I				F, I, **P**, **C**		F, I, **P**, **C**					
PC 36: Water softeners						**C**													F, I, **P**, **C**					
PC 37: Water treatment chemicals	F, I, **P**	F				F, I	I, **P**	F, I, **P**, **C**		**P**			I				F, I		F, I, **P**, **C**					
PC 2: Adsorbents	F, I, **P**	F, I, **P**, **C**	I	I		I	F, I	F, I		I							F, I		F, I, **P**, **C**		F, I, **P**, **C**	F, I, **P**, **C**		
PC 11: Explosives	F, I, **P**, **C**									**C**									F, I, **P**, **C**					F, I
PC 12: Fertilisers	F, I, **P**, **C**, **A**	F, I, **P**, **C**		I, **P**		F, I, **P**, **C**		F, I, **P**, **C**, **A**	F, **P**, **C**	F, I, **P**, **C**, **A**			F, **P**				F, I, **P**, **C**		F, I, **P**, **C**					
PC 27: Plant protection products	F, I							F, **P**	F, **P**										F, I, **P**, **C**					
PC 4: Anti-freeze and de-icing products	F, I, **P**, **C**, **A**					F, I, **P**, **C**				I, **P**, **C**, **A**									F, I, **P**, **C**					
PC 35: Washing and cleaning products	F, I, **P**, **C**, **A**	F, I, **P**, **C**		**P**		F, I, **P**, **C**, **A**		F, I, **P**, **C**, **A**	F	F, I, **P**, **C**, **A**			F, I				F, I, **P**, **C**		F, I, **P**, **C**	F, I	F, I, **P**, **C**	F, I, **P**, **C**	F, I	
PC 8: Biocidal products (e.g. disinfectants, pest control)	F, I, **P**, **C**, **A**	F				F, I, **P**, **C**		F, I, **P**, **C**, **A**		I, **P**, **C**, **A**							F, I, **P**, **C**		F, I, **P**, **C**		F	F		
PC 28: Perfumes, fragrances	F, I, **P**, **C**	F, I, **P**				F, I, **P**, **C**		F, I, **P**, **C**	F, I, **P**	F, I, **P**			F, I, **P**			F	F, I, **P**, **C**		F, I, **P**, **C**					

PC 3: Air care products								**P, C, A**										F, I, **P, C**		I	I		
PC 39: Cosmetics, personal care products	F, I, **P, C, A**	F, I, **P**		F, **P, C**		F, I, **P, C, A**		F, I, **P, C, A**	F, I, **P**	F, I, **P, C, A**			F, I, **P**			F	F, I, **P, C, A**		F, I, **P, C**		F, I, **C**	I		
PC 29: Pharmaceuticals	F, I, **P, C, A**	F, I		I, **C**		F, I, **P, C, A**		F, I, **P, C, A**	F, I	F, I, **P, C, A**			F, I				F, I, **P, C**		F, I, **P, C**				
PC 31: Polishes and wax blends	F, I, **P, C, A**	F				F, I, **P, C, A**		**C, A**		F, I, **P, C, A**			F						F, I, **P, C**				
PC 15: Non-metal-surface treatment products	F, I, **P, C**	F, I, **P, C**		F, I, **P**		F, I, **P**		F, I, **P**	F	F, I, **P, C**			F, I, **C**				F, I, **P, C**		F, I, **P, C**		F, I, **P, C**	F, I, **P, C**		
PC 24: Lubricants, greases, release products	F, I, **P, C, A**	F, I, **P, C**		F, I, **P, A**	F, I, **P**	F, I, **P, C, A**		F, I, **P, C, A**	F, I	F, I, **P, C, A**			F, I				F, I, **P, C, A**		F, I, **P, C**				
PC 25: Metal working fluids	F, I, **P, C, A**	F, I		F, I, **P**		F, I, **P, C, A**		F, I, **P, C, A**	F, I	**P, C, A**			F, I				F, I, **P, C, A**		F, I, **P, C**				
PC 16: Heat transfer fluids	F, I			I			F, I, **P**												F, I, **P, C**				
PC 17: Hydraulic fluids	F, I			F, I	I, **P**					F			F						F, I, **P, C**				
PC 13: Fuels	F, I, **P, A**	F, I, **A**				F, I, **A**				I, **A**						I, **A**			F, I, **P, C**				
PC 32: Polymer preparations and compounds	F, I, **P, C, A**	F, I, **P, C, A**	F, I, **A**	F, I	I	F, I, **P, C, A**		F, I, **P, C**		F, I, **P, C, A**			F				F, I, **P, C, A**		F, I, **P, C, A**		F, I	F, I, **A**	F, I, **A**	F, I, **A**
PC 1: Adhesives, sealants	F, I, **P, C, A**	F, I, **P, C, A**				F, I, **P, C, A**		F, I, **P**		F, I, **P, C, A**			F, **C**				F, I, **P, C, A**		F, I, **P, C**		F, I, **P, C**	F, I, **P, C**		
PC 9c: Finger paint	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**		F, I, **P, C**		F, I, **P**	F, I	F, I, **P, C**			F, I				F, I, **P, C**		F, I, **P, C**		F, I, **P, C**	F, I, **P, C**		
PC 9b: Fillers, putties, plasters, modelling clay	F, I, **P, C**	F, I, **P, C**		I		F, I, **P, C**		F, I, **P, C**	F, I, **P**	F, I, **P, C, A**			F, I, **P, C**				F, I, **P, C**		F, I, **P, C, A**		F, I, **P, C**	F, I, **P, C**		
PC 9a: Coatings and paints, thinners, paint removes	F, I, **P, C, A**	F, I, **P, C, A**		F, I, **P, C, A**		F, I, **P, C, A**		F, I, **P, A**	F, I, **P, A**	F, I, **P, C, A**		F	F, I, **P, C, A**	I	F, I, **P**		F, I, **P, C, A**	I, **P**	F, I, **P, C, A**	F, I, **P, C, A**	F, I, **P, C**	F, I, **P, C, A**	F, I, **P, C, A**	
PC 18: Ink and toners	F, I, **P, C**	F, I, **P, C**		F, I, **P, C, A**		F, I, **P**		F, I, **P**		F, I, **P, C**			F			**C**	F, I, **P, C**	I, **P**	F, I, **P, C, A**	F, I, **P, C, A**	F, I, **P, C**	F, I, **P, C, A**	F, I, **P, C, A**	
PC 26: Paper and board treatment products	F, I, **P, A**	F, I, **P, A**				F, I, **P, A**		F, I, **P, A**		F, I, **P, A**							F, I, **P, A**		F, I, **P, C, A**		F	F		

PC 34: Textile dyes, and impregnating products	F, I, **P**, **A**	F, I, **P**, **A**				F, I, **P**, **A**		F, I, **P**, **A**	F	I, **P**, **A**							F, I, **P**, **A**		F, I, **P**, **C**, **A**				
PC 23: Leather treatment products	F, I, **P**, **A**	F, I, **P**, **C**, **A**		I, **P**		F, I, **P**, **A**		F, I, **P**, **A**	F	F, I, **P**, **A**			F				F, I, **P**, **A**		F, I, **P**, **C**, **A**		F, I, **P**, **C**	F, I, **P**, **C**		
PC 14: Metal surface treatment products	F, I, **P**, **C**, **A**	F, I, **P**, **C**		F, I, **P**, **C**, **A**	F, I, **P**	F, I, **P**, **C**, **A**		F, I, **P**, **C**, **A**	F, I	F, I, **P**, **C**, **A**			F, I, **C**				F, I, **P**, **C**		F, I, **P**, **C**				
PC 38: Welding and soldering products, flux products	I, **A**			F, I, **P**, **C**, **A**		I, **P**, **C**, **A**	F, I			I, **A**	I			I, **P**					F, I, **P**, **C**				
PC 7: Base metals and alloys	F, I, **A**			F, I, **P**, **C**, **A**		F, I, **P**, **C**		F, I	I, **A**	F, I						I			F, I, **P**, **C**				
PC 33: Semiconductors	F, I, **P**, **C**	F, I, **P**, **C**				F, I				I, **P**, **C**			F				F, I, **P**, **C**		F, I, **P**, **C**				
PC 21: Laboratory chemicals	F, I, **P**, **C**	F, I, **P**, **C**	I	F, I, **P**	F	F, I, **P**, **C**		F, I, **P**, **C**	F, I, **P**	F, I, **P**			F, I, **P**	**P**		F	F, I, **P**, **C**	I, **P**	F, I, **P**, **C**		F, I, **P**	F, I, **P**	I	
PC 19: Intermediate	F, I, **P**, **C**	F, I, **P**, **C**		I, **P**		F, I, **P**, **C**	I	F, I, **P**	F, I, **P**	F, I, **P**	I		F, I, **P**			F, I	F, I, **P**, **C**		F, I, **P**, **C**		I	I		
PC 40: Extraction agents	F, I, **P**	F, I		I		I		F, I									F, I		F, I, **P**, **C**				
PC42: Electrolytes for batteries	I, **P**			I		I	**A***									F, I							
PC 30: Photo-chemicals	I, **P**	F, I								I									F, I, **P**, **C**		I	I		
PC x1: Food and feed additives	F, I							I		F, I							F, I		F, I, **P**, **C**					

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, * = ECHA's assessment.

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

Data extracted on 18/01/2023.

EC/List number	RMOA	Authorisation		Restriction*	CLH	Actions not under REACH/ CLP
		Candidate List	Annex XIV	Annex XVII	Annex VI (CLP)	
215-222-5				YES	YES	ESR[10]
215-244-5					YES	PPP[11]
231-175-3				YES		ESR
231-592-0				YES	YES	ESR
231-793-3				YES	YES	ESR
231-944-3					YES	ESR
616-097-3				YES	YES	

*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).

There are no relevant completed or ongoing regulatory risk management activities for the other substances.

[10] Existing Substances Regulation – The Council Regulation (EEC) No 793/93.

[11] Plant Protection Products Regulation – Commission Regulation (EU) No 284/2013.