

2.1. Manufacture

Table 2.2. Manufacture

	Manufacture
M-1	<p>Zinc sulphate production - Wet</p> <p><u>Further description of manufacturing process:</u></p> <p>The manufacturing process includes:</p> <ul style="list-style-type: none"> • Reception of zinc-bearing materials and transfer to the reaction tank • Feeding of the zinc-bearing materials (containing zinc metal, zinc oxide or zinc hydroxide) into the mixing tank. The leaching reaction with sulphuric acid solutions is kept at the proper pH and temperature. • Separation of the leach-residue (insoluble sulphates and steriles) occurs in covered settlers; if needed, the leachate may be filtered on adapted filters, • Purification steps may be applied of which: <ul style="list-style-type: none"> o Oxidation (with air or oxygen) of some of the present elements (i.e. Fe) followed by another sedimentation or filtration step, if needed o Hydrolysis (with ZnO-rich reagent) of some of the hydrolysable elements (i.e. Fe, Al, ...) followed by another sedimentation or filtration step, if needed o Cementation (with zinc powder) of some of the present elements (i.e. Cu, Cd, Ni, Co, ...) followed by another sedimentation or filtration step, if needed • Concentration by water evaporation, under exhaust hood. • Maintenance activities. <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC1) - Discharge via additional off-site sewage treatment plant (ERC1) - No emissions to water and air (ERC1) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1) - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. (PROC 2) - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5)

	<ul style="list-style-type: none"> - Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Manufacturing and processing of minerals and/or metals at substantially elevated temperature (PROC 22) - Handling of solid inorganic substances at ambient temperature (PROC 26) - Manual maintenance (cleaning and repair) of machinery (PROC28) <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=25000 Tonnage (tonnes/year)</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
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2.2. Identified uses

Table 2.3. Formulation

	Formulation
F-1	<p>Generic formulation of zinc sulphate</p> <p><u>Further description of the use:</u></p> <p>This scenario is valid for formulations that are put on the market, it is not intended for situations where formulation is a pre-step during an industrial use. Also note that there is no chemical transformation during formulation.</p> <p>Zinc sulphate can be used in the formulation of water-based preparations by mixing the starting materials in a water or solvent based matrix.</p> <p>Includes packaging, labelling and distribution to customers.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC2) - Discharge via additional off-site sewage treatment plant (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1) - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. (PROC 2)

	<ul style="list-style-type: none"> - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a) - Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Tabletting, compression, extrusion, pelletisation, granulation (PROC 14) - Handling of solid inorganic substances at ambient temperature (PROC 26) <p>Product Category formulated: PC 14: Metal surface treatment products ; PC 16: Heat transfer fluids ; PC 18: Ink and toners ; PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents ; PC 21: Laboratory chemicals ; PC 24: Lubricants, greases, release products ; PC 26: Paper and board treatment products ; PC 33: Semiconductors ; PC 0: Other:</p> <p>Technical function of the substance: no specific technical function</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 25 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-2	<p>Formulation of fertilizer products</p> <p><u>Further description of the use:</u></p> <p>Industrial mixing, granulation, prilling, pelletisation, coating and transfers.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC2) - Discharge via additional off-site sewage treatment plant (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Closed operations, no likelihood of exposure. (PROC 1) - Closed continuous process with occasional controlled exposure. (PROC 2) - Closed batch process with occasional controlled exposure. (PROC 3) - Production process where opportunity for exposure arises. (PROC 4)

	<ul style="list-style-type: none"> - Process in stages with significant contact, including payload work in bulk storages. (PROC 5) - Transfers, loading, unloading, sampling and cleaning without dedicated engineering controls in place. (PROC 8a) - Transfers, loading, unloading, sampling and cleaning with dedicated engineering controls in place. (PROC 8b) - Packing liquids and solids in a dedicated filling line, including weighing. (PROC 9) - Production of fertilizers by granulation or low-energy compression. (PROC 14) - Use in laboratory for quality control and other analyses. (PROC 15) - Manual maintenance of equipment during intentional pauses and blockages. (PROC28) <p>Product Category formulated: PC 12: Fertilisers</p> <p>Technical function of the substance: no specific technical function</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 750 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-3	<p>Formulation by incorporating fertilizers onto or into a matrix</p> <p><u>Further description of the use:</u></p> <p>Industrial treatment of growth substrates or seeds with fertilizers or fertilizer granules with a coating material resulting in a slow release matrix.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC3) - Discharge via additional off-site sewage treatment plant (ERC3) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Closed continuous process with occasional controlled exposure. (PROC 2) - Closed batch process with occasional controlled exposure. (PROC 3) - Production process where opportunity for exposure arises. (PROC 4) - Process in stages with significant contact. (PROC 5) - Transfers, loading, unloading, sampling and cleaning without dedicated engineering controls in place. (PROC 8a) - Transfers, loading, unloading, sampling and cleaning with dedicated engineering controls in place. (PROC 8b)

	<ul style="list-style-type: none"> - Packing the treated materials with dedicated engineering controls in place, including weighing. (PROC 9) - Treatment of growth substrates or seeds by dipping and pouring. (PROC 13) - Use in laboratory for quality control and other analyses. (PROC 15) <p>Product Category formulated: PC 12: Fertilisers</p> <p>Technical function of the substance: no specific technical function</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=750 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-4	<p>Formulation of zinc sulphate containing metal surface treatment products.</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - No emissions to air and water (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. (PROC 1) - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. (PROC 2) - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) <p>Product Category formulated: PC 9a: Coatings and paints, thinners, paint removers ; PC 14: Metal surface treatment products ; PC 15: Non-metal-surface treatment products</p> <p>Technical function of the substance: antiscaling agent ; corrosion inhibitor ; durability agent ; plating agent ; surfactant ; waterproofing agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=5 Tonnage (tonnes/year)</p>

	<p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-5	<p>Formulation of zinc sulphate containing cleaning products</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC2) - Discharge via additional off-site sewage treatment plant (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b) - Tabletting, compression, extrusion, pelettisation, granulation (PROC 14) <p>Product Category formulated: PC 35: Washing and cleaning products</p> <p>Technical function of the substance: cleaning agent ; corrosion inhibitor</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=10 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-6	<p>Formulation of zinc sulphate containing catalysts</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC2) - Discharge via additional off-site sewage treatment plant (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b) - Manual maintenance (cleaning and repair) of machinery (PROC28)

	<p>Product Category formulated: PC 2: Adsorbents ; PC 40: Extraction agents ; PC 0: Other:</p> <p>Technical function of the substance: no specific technical function</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 1620 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
F-7	<p>Formulation of zinc sulphate in cosmetics</p> <p><u>Further description of the use:</u></p> <p>Use of ZnSO₄ as an active component in the manufacturing of cosmetics preparations by mixing or blending of solid or liquid materials</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - No emissions to air and water (ERC2) - Discharge via additional off-site sewage treatment plant (ERC2) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2) - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a) - Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Tabletting, compression, extrusion, pelletisation, granulation (PROC 14) - Use as laboratory reagent (PROC 15) - Handling of solid inorganic substances at ambient temperature (PROC 26) <p>Product Category formulated: PC 39: Cosmetics, personal care products</p> <p>Technical function of the substance: no specific technical function</p>

	<p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 45 Tonnage (tonnes/year)</p> <p>Substance supplied to that use:</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
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Table 2.4. Uses at industrial sites

	Uses at industrial sites
IW-1	<p>Industrial use of zinc sulphate in metal surface treatment</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC5) - Discharge via additional off-site sewage treatment plant (ERC5) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Transfer and dilution of concentrated product by using dedicated dosing system (PROC 8b) - Brushing; Automated task; medium RMM (PROC 10) - Industrial uses; Treatment of articles by dipping and pouring (PROC 13) - Industrial spraying; Automated task; Open systems; Long term (PROC 7) <p>Product Category used: PC 14: Metal surface treatment products</p> <p>Sector of end use: SU 15: Manufacture of fabricated metal products, except machinery and equipment</p> <p>Technical function of the substance: antiscaling agent ; corrosion inhibitor ; plating agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 1000 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: yes</p> <p>Link to the subsequent service life: Article service life of zinc coated items</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-2	<p>Use of zinc sulphate-containing catalysts</p>

	<p><u>Further description of the use:</u></p> <p>Industrial use of ZnSO₄ containing catalysts. Zinc sulphate is a constituent of many types of catalysts: it is present for its catalytic activity, its ability to absorb catalyst poisons (a.o.S and Cl) and as catalyst strength component.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - No emissions to air and water (ERC6b) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. (PROC 1) - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. (PROC 2) - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Manual maintenance (cleaning and repair) of machinery (PROC28) <p>Product Category used: PC 2: Adsorbents ; PC 40: Extraction agents ; PC 0: Other:</p> <p>Sector of end use: SU 8: Manufacture of bulk, large scale chemicals (including petroleum products) ; SU 9: Manufacture of fine chemicals</p> <p>Technical function of the substance: catalyst ; processing aid not otherwise specified</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 100 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-3	<p>Inclusion of zinc sulphate in respirator cartridges / filters</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p>

	<p>- No emissions to water and air (ERC5)</p> <p>Contributing activity/technique for the workers :</p> <p>- Mixing or blending in batch processes (PROC 5)</p> <p>- Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)</p> <p>- Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)</p> <p>Product Category used: PC 0: Other:</p> <p>Technical function of the substance: absorbent ; catalyst ; reducing agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 50 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-4	<p>Use of zinc sulphate (formulations) in paper products (coating)</p> <p><u>Further description of the use:</u></p> <p>Industrial use of zinc sulphate or ZnSO₄-formulations as component for coatings and treatment preparations for paper products</p> <p>Contributing activity/technique for the environment :</p> <p>- Discharge via additional off-site sewage treatment plant (ERC5)</p> <p>Contributing activity/technique for the workers :</p> <p>- Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions. (PROC 2)</p> <p>- Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. (PROC 3)</p> <p>- Mixing or blending in batch processes (PROC 5)</p> <p>- Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC 8b)</p> <p>Product Category used: PC 26: Paper and board treatment products</p> <p>Sector of end use: SU 6b: Manufacture of pulp, paper and paper products</p> <p>Technical function of the substance: Offset chemical component</p>

	<p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 100 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: yes</p> <p>Link to the subsequent service life: Use of paper containing zinc compounds</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-5	<p>Industrial use of zinc sulphate for production of inorganic and organic compounds</p> <p><u>Further description of the use:</u></p> <p>Industrial use of ZnSO₄ or formulations in the manufacture of organic substances by mixing the starting materials in an organic-based matrix and other inorganic zinc-substances in a water-based matrix, with potentially filtering and packaging.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC6a) - Discharge via additional off-site sewage treatment plant (ERC6a) - Direct discharge to water after on-site treatment (ERC6a) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1) - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2) - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Manufacturing and processing of minerals and/or metals at substantially elevated temperature (PROC 22) - Open processing and transfer operations at substantially elevated temperature (PROC 23) - Handling of solid inorganic substances at ambient temperature (PROC 26)

	<p>- Use as laboratory reagent (PROC 15)</p> <p>Product Category used: PC 9a: Coatings and paints, thinners, paint removers ; PC 9b: Fillers, putties, plasters, modelling clay ; PC 9c: Finger paints ; PC 21: Laboratory chemicals</p> <p>Sector of end use: SU 8: Manufacture of bulk, large scale chemicals (including petroleum products) ; SU 9: Manufacture of fine chemicals ; SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement</p> <p>Technical function of the substance: intermediate</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 250 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-6	<p>Zinc sulphate as laboratory reagent</p> <p><u>Further description of the use:</u></p> <p>Use of zinc sulphate as active laboratory reagent in aqueous or organic media, for analysis or synthesis</p> <p>Contributing activity/technique for the environment :</p> <p>- Discharge via either on-site or off-site sewage treatment plant (ERC6a)</p> <p>Contributing activity/technique for the workers :</p> <p>- Use as laboratory reagent (PROC 15)</p> <p>Product Category used: PC 21: Laboratory chemicals</p> <p>Technical function of the substance: intermediate</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: $\leq 0,05$ Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-7	<p>Use of zinc sulphate or ZnSO₄-formulations in treatment of textile and leather products</p> <p><u>Further description of the use:</u></p>

	<p>Industrial use of Zinc Sulphate or ZnSO₄-formulations as component for coatings and treatment preparations for textile and leather products</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC6b) - Discharge via additional off-site sewage treatment plant (ERC6b) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. (PROC 3) - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Calendering operations (PROC 6) - Treatment of articles by dipping and pouring (PROC 13) <p>Product Category used: PC 23: Leather treatment products ; PC 34: Textile dyes, and impregnating products</p> <p>Sector of end use: SU 5: Manufacture of textiles, leather, fur</p> <p>Technical function of the substance: fixing agent (mordant) ; tanning agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10 tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 200 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-8	<p>Use of zinc sulphate or ZnSO₄ formulations in enzyme or fermentation processes</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Direct discharge to water after on-site treatment (ERC6b) - Discharge via additional off-site sewage treatment plant (ERC6b) - No emissions to air and water (ERC6b) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)

	<ul style="list-style-type: none"> - Chemical production where opportunity for exposure arises (PROC 4) - Mixing or blending in batch processes (PROC 5) - Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b) - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9) - Use as laboratory reagent (PROC 15) - Handling of solid inorganic substances at ambient temperature (PROC 26) - Manual maintenance (cleaning and repair) of machinery (PROC28) <p>Product Category used: PC 0: Other:</p> <p>Technical function of the substance: flavouring and nutrient ; stabilising agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=10 Tonnage for this use (tonnes/year)</p> <p>Substance supplied to that use:</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
IW-1	<p>Use of zinc sulphate in ore dressing, mining metallurgy</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Use of zinc sulphate in ore dressing, mining metallurgy (ERC6b) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Delivery to the mine (PROC 8b) - Transfer to operating tanks and diluting (PROC 3) - Dosing and feeding into flotation (PROC 8b) <p>Product Category used: PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents</p> <p>Sector of end use: SU 2a: Mining (without offshore industries)</p> <p>Technical function of the substance: adsorbent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=1000 Tonnage for this use (tonnes/year)</p>

	<p>Limited number of sites:</p> <p>Substance supplied to that use: as such</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
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Table 2.5. Uses by professional workers

	Uses by professional workers
PW-1	<p>Professional use of fertilizers</p> <p><u>Further description of the use:</u></p> <p>Mixing and loading of fertilizers into the equipment and applying with different techniques (spreading, fertigation etc.) for the crop by farmers, growers and contractors.</p> <p>Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> - Outdoor use - direct application of solid fertilizers to soil; surface spreading (ERC8e) - Outdoor use - direct application of solid or liquid fertilizers to soil; incorporation, placement, mixing, seed treatment, drip irrigation (ERC8e) - Outdoor use - application of fertilizers by helicopter (ERC8e) - Outdoor use - spray application of fertilizers in liquid form; soil surface spreading, sprinkler, pivot, foliar spray, slurry (ERC8e) - Indoor use of fertilizer (nutrient). (ERC8b) <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> - Handling of fertilizer in stages with significant contact (PROC 5) - Unloading and loading of fertilizer in non-dedicated facilities, including sampling and cleaning fertilizer residues from the equipment (PROC 8a) - Unloading and loading of fertilizer in dedicated facilities (e.g. in greenhouses where dedicated engineering controls are in place), including sampling (PROC 8b) - Packing fertilizers in a dedicated filling line, including weighing (PROC 9) - Air-dispersive application of fertilizers (PROC 11) - Chemical analyses of fertilizers (PROC 15) <p>Product Category used: PC 12: Fertilisers</p> <p>Sector of end use: SU 1: Agriculture, forestry and fishing</p> <p>Technical function of the substance: soil amendments (including fertilisers)</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported</p>

	<p>>=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=750 Tonnage (tonnes/year)</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
PW-1	<p>Zinc sulphate as laboratory reagent</p> <p><u>Further description of the use:</u></p> <p>Use of zinc sulphate as active laboratory reagent in aqueous or organic media, for analysis or synthesis</p> <p>Contributing activity/technique for the environment :</p> <p style="padding-left: 40px;">- Zinc sulphate as laboratory reagent (ERC8b)</p> <p>Contributing activity/technique for the workers :</p> <p style="padding-left: 40px;">- Use as laboratory reagent (PROC 15)</p> <p>Product Category used: PC 21: Laboratory chemicals</p> <p>Technical function of the substance: intermediate</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=0,05 Tonnage (tonnes/year)</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>

Table 2.6. Consumer uses

	Consumer uses
C-1	<p>Consumer use of fertilizers</p> <p><u>Further description of the use:</u></p> <p>Mixing and application of solid or liquid fertilizers at home for indoor and outdoor plants.</p> <p>Contributing activity/technique for the environment:</p> <p style="padding-left: 40px;">- Outdoor use - direct application of solid or liquid fertilizers to soil; incorporation, placement, mixing, seed treatment, drip irrigation (ERC8e)</p>

	<p>- Outdoor use - spray application of liquid fertilizers; soil surface spreading, sprinkler, pivot, foliar spray, slurry (ERC8e)</p> <p>- Indoor use of fertilizer (nutrient). (ERC8b)</p> <p>Contributing activity/technique for consumers:</p> <p>- Consumer use of fertilizers (indoor). (PC 12)</p> <p>- Consumer use of fertilizers (outdoor). (PC 12)</p> <p>Technical function of the substance: soil amendments (including fertilisers)</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=750 Tonnage (tonnes/year)</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
C-2	<p>Consumer use of zinc sulphate containing cleaning products</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment:</p> <p>- Wide Spread Use in 'Down the Drain' cleaning products (ERC8a)</p> <p>Contributing activity/technique for consumers:</p> <p>- Consumer use of zinc sulphate containing cleaning products (PC 35)</p> <p>Technical function of the substance: cleaning agent ; corrosion inhibitor</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=10 Tonnage (tonnes/year)</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
C-3	<p>Consumer use of ZnSO4-containing cosmetics</p> <p><u>Further description of the use:</u></p> <p>Contributing activity/technique for the environment:</p> <p>- Wide Spread Use in 'Down the Drain' cosmetic products (ERC8a)</p> <p>Contributing activity/technique for consumers:</p> <p>- Use of cosmetics (PC 39)</p> <p>Technical function of the substance: deodoriser ; pigment ; stabilising agent ; UV blocker, skin</p>

	<p>care</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Regulatory status: use in cosmetics products within the scope of Directive 76/768/EEC (REACH Art. 14(5), 56(5)(a) and 67(2)).</p> <p>Tonnage of substance for this use: <=45 Tonnage (tonnes/year)</p> <p>Subsequent service life relevant for that use: no</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
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Table 2.7. Article service life

	Article service life
SL-1	<p>Article service life of zinc coated items</p> <p><u>Further description of the use:</u></p> <p>Article used by: consumers</p> <p>Substance intended to be released from article: no</p> <p>Article category related to subsequent service life (AC):</p> <p>Contributing activity/technique for the environment:</p> <ul style="list-style-type: none"> - Article service life of zinc coated items (ERC10a ; ERC11a) <p>Contributing activity/technique for consumers:</p> <ul style="list-style-type: none"> - Vehicles (AC 1) - Machinery, mechanical appliances, electrical/electronic articles (AC 2) - Metal articles (AC 7) <p>Contributing activity/technique for the workers:</p> <p>Technical function of the substance: antiscaling agent ; corrosion inhibitor ; pigment ; plating agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported >=10tonnes/year per registrant</p> <p>Tonnage of substance for this use: <=1000 Tonnage (tonnes/year)</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
SL-2	<p>Use of sealed respirator cartridge</p> <p><u>Further description of the use:</u></p>

	<p>Article used by: consumers</p> <p>Substance intended to be released from article: no</p> <p>Article category related to subsequent service life (AC):</p> <p>Contributing activity/technique for the environment:</p> <ul style="list-style-type: none"> - Use of sealed respirator cartridge (ERC10a ; ERC11a) <p>Contributing activity/technique for consumers:</p> <ul style="list-style-type: none"> - Service life of sealed respirator cartridges (AC8g) <p>Contributing activity/technique for the workers:</p> <p>Technical function of the substance: absorbent ; catalyst ; reducing agent</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 50 Tonnage (tonnes/year)</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>
SL-3	<p>Use of paper containing zinc compounds</p> <p><u>Further description of the use:</u></p> <p>Article used by: consumers</p> <p>Substance intended to be released from article: no</p> <p>Article category related to subsequent service life (AC):</p> <p>Contributing activity/technique for the environment:</p> <ul style="list-style-type: none"> - Use of paper containing zinc compounds (ERC10a ; ERC11a) <p>Contributing activity/technique for consumers:</p> <ul style="list-style-type: none"> - Use of paper containing zinc compounds (AC 8) <p>Contributing activity/technique for the workers:</p> <p>Technical function of the substance: processing aid not otherwise specified ; Offset chemical component</p> <p>registration according to REACH Article 10; total tonnage manufactured/imported ≥ 10tonnes/year per registrant</p> <p>Tonnage of substance for this use: ≤ 100 Tonnage (tonnes/year)</p> <p><i>Related assessment: use assessed in a joint CSR</i></p>

