

SAFETY DATA SHEET

PGM concentrate

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : PGM concentrate**EC number** : 308-516-0**REACH Registration number**

Registration number	Legal entity
01-2119543718-30-0011	-

CAS number : 98072-61-8**Product code** : Not available.**Product description** : Not available.**Product type** : Solid.**Other means of identification** : Slimes and Sludges, precious metal refining

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Use as an intermediate in metal manufacturing Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Industrial uses: Uses of substances as such or in preparations at industrial sites.

1.3 Details of the supplier of the safety data sheet

Boliden Commercial
Box 750
SE-101 35 Stockholm
Sweden
Tel +46 8 610 15 00

e-mail address of person responsible for this SDS : info.market@boliden.com

1.4 Emergency telephone number

National advisory body/Poison Center**Telephone number** : 112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Repr. 1A, H360

STOT RE 1, H372

Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

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SECTION 2: Hazards identification

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Avoid release to the environment. Do not breathe dust. Do not eat, drink or smoke when using this product.

Response : IF exposed or concerned: Get medical advice or attention.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : Slimes and Sludges, precious metal refining

Supplemental label elements : Contains tellurium. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.
People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
Not applicable. (Inorganic)	N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Slimes and Sludges, precious metal refining	REACH #: 01-2119543718-30	100	Repr. 1A, H360 STOT RE 1, H372 Aquatic Chronic 3, H412	[*]
palladium	EC: 308-516-0 CAS: 98072-61-8	>80	Not classified.	[A]
platinum	EC: 231-115-6 CAS: 7440-05-3	<10	Not classified.	[A]
copper	EC: 231-116-1 CAS: 7440-06-4 EC: 231-159-6 CAS: 7440-50-8	<3	Aquatic Acute 1, H400 (M=10000) Aquatic Chronic 1,	[A]

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SECTION 3: Composition/information on ingredients

tellurium	EC: 236-813-4 CAS: 13494-80-9	<1	H410 (M=100) Acute Tox. 4, H332 Skin Sens. 1B, H317 Repr. 1B, H360D Aquatic Chronic 4, H413	[A]
lead massive [particle diameter > 1 mm]	EC: 231-100-4 CAS: 7439-92-1 Index: 082-014-00-7	<1	Repr. 1A, H360FD Lact., H362 STOT RE 1, H372 (blood, central nervous system (CNS), kidneys) (oral, inhalation)	[A]
arsenic	EC: 231-148-6 CAS: 7440-38-2 Index: 033-001-00-X	<1	Acute Tox. 3, H301 Acute Tox. 3, H331 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[A]
silver	EC: 231-131-3 CAS: 7440-22-4	<0.1	Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=1000) See Section 16 for the full text of the H statements declared above.	[A]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[*] Substance

[A] Constituent

[B] Impurity

[C] Stabilizing additive

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

SECTION 4: First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical or CO₂.
- Unsuitable extinguishing media** : Do not use water. Violent reaction may occur.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:
metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

- Recommendations** : Not available.

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SECTION 7: Handling and storage

Industrial sector specific solutions : Refer to Section 1.2 of the Safety data sheet.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
platinum	EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values TWA: 1 mg/m ³ 8 hours.
lead massive [particle diameter > 1 mm]	EU OEL (Europe, 10/2019). Notes: list of binding occupational exposure limit values TWA: 0.15 mg/m ³ 8 hours.
silver	EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values TWA: 0.1 mg/m ³ 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
copper	DNEL	Short term Inhalation	1 mg/m ³	General population	Local
	DNEL	Long term Inhalation	1 mg/m ³	General population	Local
	DNEL	Short term Inhalation	20 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	20 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	137 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	137 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	Workers	Systemic
tellurium	DNEL	Long term Oral	0.03 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.1 mg/m ³	General population	Systemic
	DNEL	Long term Dermal	0.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.4 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	0.6 mg/kg bw/day	Workers	Systemic

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SECTION 8: Exposure controls/personal protection

silver	DNEL	Long term Inhalation	0.04 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	0.1 mg/m ³	Workers	Systemic
	DNEL	Long term Oral	1.2 mg/kg bw/day	General population	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
palladium	Fresh water	0.027 µg/l	Assessment Factors
	Marine water	0.003 µg/l	Assessment Factors
	Sewage Treatment Plant	1.46 mg/l	Assessment Factors
	Fresh water sediment	0.274 mg/kg dwt	Assessment Factors
	Marine water sediment	0.027 mg/kg dwt	Assessment Factors
copper	Soil	0.012 mg/kg dwt	Equilibrium Partitioning
	Fresh water	7.8 µg/l	-
	Marine water	5.2 µg/l	-
	Fresh water sediment	87 mg/kg dwt	-
	Marine water sediment	676 mg/kg dwt	-
	Soil	65 mg/kg dwt	-
	Sewage Treatment Plant	230 µg/l	-
tellurium	Soil	88 mg/kg dwt	-
	Fresh water	5.79 µg/l	-
	Marine water	0.579 µg/l	-
	Sewage Treatment Plant	3.2 µg/l	-
lead massive [particle diameter > 1 mm]	Fresh water	3.1 µg/l	-
	Marine water	3.5 µg/l	-
	Fresh water sediment	174 mg/kg dwt	-
	Fresh water sediment	41 mg/kg dwt	-
	Marine water sediment	164 mg/kg dwt	-
	Soil	212 mg/kg dwt	-
	Soil	0.1 mg/l	-
	Fresh water	2.4 µg/l	-
	Marine water	3.3 µg/l	-
	Fresh water sediment	186 mg/kg dwt	-
	Marine water sediment	168 mg/kg dwt	-
Sewage Treatment Plant	100 µg/l	-	
arsenic	Fresh water	6.5 µg/l	-
	Marine water	0.5 µg/l	-
	Fresh water sediment	64.8 mg/kg dwt	-
	Marine water sediment	4.5 mg/kg dwt	-
	Soil	0.3 mg/kg dwt	-
	Sewage Treatment Plant	30.4 µg/l	-
silver	Fresh water	0.04 µg/l	-
	Marine water	0.86 µg/l	-
	Fresh water sediment	438.13 mg/kg dwt	-
	Marine water sediment	438.13 mg/kg dwt	-
	Soil	1.41 mg/kg dwt	-
	Sewage Treatment Plant	25 µg/l	-
	Plant		

8.2 Exposure controls

Appropriate engineering controls

: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

SECTION 8: Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Only CE-marked personal protection equipment should be used.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid.
- Color** : Not available.
- Odor** : Odorless.
- Odor threshold** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flammability (solid, gas)** : Not available.
- Upper/lower flammability or explosive limits** : Not applicable.
- Flash point** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Not applicable.
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Solubility in water** : Not available.

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SECTION 9: Physical and chemical properties

Miscible with water : No.
Partition coefficient: n-octanol/ water : Not applicable.
Vapor pressure : Not available.
Evaporation rate : Not available.
Relative density : Not available.
Vapor density : Not applicable.
Explosive properties : Not available.
Oxidizing properties : Not available.
Particle characteristics
Median particle size : Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability : The product is stable.
10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid : No specific data.
10.5 Incompatible materials : strong acids
 Strong bases
 Strong oxidizing materials
 Strong reducing agents
10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
arsenic	LD50 Oral	Rat	763 mg/kg	-

Conclusion/Summary : Not classified as dangerous

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
tellurium	N/A	N/A	N/A	N/A	1.5
arsenic	100	N/A	N/A	3	N/A

Irritation/Corrosion

Conclusion/Summary

Skin : Non-corrosive to skin. Non-irritating to the skin.
Eyes : Non-corrosive to the eyes. Non-irritating to the eyes.
Respiratory : Non-irritating to the respiratory system.

Sensitization

Conclusion/Summary

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SECTION 11: Toxicological information

Skin : Non-sensitizer to skin.
Respiratory : Not classified for respiratory sensitization.

Mutagenicity

Conclusion/Summary : No mutagenic effect.

Carcinogenicity

Conclusion/Summary : No carcinogenic effect.

Reproductive toxicity

Conclusion/Summary : May damage fertility or the unborn child.

Teratogenicity

Conclusion/Summary : No teratogenic effect.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Slimes and Sludges, precious metal refining lead massive [particle diameter > 1 mm]	Category 1 Category 1	- oral, inhalation	- blood, central nervous system (CNS), kidneys

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
Skin contact : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

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SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
copper	Acute EC50 1100 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute EC50 2.1 µg/l Fresh water	Daphnia - Daphnia longispina - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute IC50 13 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute IC50 5.4 mg/l Marine water	Aquatic plants - Plantae - Exponential growth phase	72 hours
	Acute LC50 0.072 µg/l Marine water	Crustaceans - Amphipoda - Adult	48 hours
	Acute LC50 7.56 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic NOEC 2.5 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	72 hours
	Chronic NOEC 7 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
lead massive [particle diameter > 1 mm]	Chronic NOEC 0.02 mg/l Fresh water	Crustaceans - Cambarus bartonii - Mature	21 days
	Acute EC50 1340 ppb Marine water	Algae - Isochrysis galbana - Exponential growth phase	72 hours
	Acute EC50 8000 µg/l Fresh water Chronic NOEC 1.09 mg/l Fresh water	Aquatic plants - Lemna minor Algae - Scenedesmus acutus var. acutus	4 days 4 days
arsenic	Acute EC50 0.172 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 1700 µg/l Fresh water	Crustaceans - Simocephalus vetulus	48 hours
	Acute LC50 1900 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 9900 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 0.0625 mg/l Marine water	Algae - Ulva pertusa	96 hours
silver	Acute EC50 1.4 µg/l Marine water	Algae - Chroomonas sp.	4 days
	Acute EC50 0.24 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 11 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 2.13 µg/l Fresh water	Fish - Pimephales promelas	96 hours

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SECTION 12: Ecological information

	Chronic NOEC 5 mg/l Marine water	Algae - Glenodinium halli	72 hours
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Conclusion/Summary : Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
silver	-	70	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
PGM concentrate, Rönnskär	Not applicable. (Inorganic)	N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : This product is listed as Hazardous by the EU Directive on hazardous waste. Dispose of according to all national and local applicable regulations.

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Toxic to reproduction	lead	Candidate	ED/61/2018	6/27/2018

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users. People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

PGM concentrate

SECTION 15: Regulatory information

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

List name	Ingredient name	Status
Heavy metals - Annex 1	Lead (Pb)	Listed

Inventory list

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are active or exempted.
Viet Nam	: All components are listed or exempted.

15.2 Chemical Safety Assessment : Complete.

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

PGM concentrate

SECTION 16: Other information

[Procedure used to derive the classification according to Regulation \(EC\) No. 1272/2008 \[CLP/GHS\]](#)

Classification	Justification
Repr. 1A, H360 STOT RE 1, H372 Aquatic Chronic 3, H412	Expert judgment Expert judgment Expert judgment

[Full text of abbreviated H statements](#)

H301	Toxic if swallowed.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H360	May damage fertility or the unborn child.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

[Full text of classifications \[CLP/GHS\]](#)

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3
Aquatic Chronic 4	AQUATIC HAZARD (LONG-TERM) - Category 4
Lact.	TOXIC TO REPRODUCTION - Effects on or via lactation
Repr. 1A	TOXIC TO REPRODUCTION - Category 1A
Repr. 1B	TOXIC TO REPRODUCTION - Category 1B
Skin Sens. 1B	SKIN SENSITIZATION - Category 1B
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

Date of printing : 1/17/2022
Date of issue/ Date of revision : 10/5/2021
Date of previous issue : No previous validation
Version : 1

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