Constellium

SAFETY DATA SHEET

Aluminium Metal Alloys

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

1.1 Product identifier

Product name : Aluminium Metal Alloys

Product code : Aluminium metal alloy 1XXX, 2XXX, 3XXX, 4XXX, 5XXX, 6XXX, 7XXX, 8XXX, remelt alloys

Not applicable, Alloys: > 1% Ni, > 1% Li or > 0.1% Pb

Product type : Solid.

Other means of identification : Aluminium ingots, aluminium billets, aluminium slabs, coils, extruded products...

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

Product use : Uses of substances as such or in preparations at industrial sites.
Metal-working Industry.

Area of application : Industrial applications.

Uses advised against
None identified.

1.3 Details of the supplier of the safety data sheet

Constellium International
Washington Plaza
40-44, rue Washington
75008 Paris
France

Telephone no.: +33 (0)1 73 01 46 00

https://www.constellium.com/contact

e-mail address of person responsible for this SDS : stephanie.massambi@constellium.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : France/Lyon: +33 (0) 4 72 11 69 11
Germany: +49-30-18412-0
Austria: +43 664 6210336

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : 10 percent of the mixture consists of component(s) of unknown acute oral toxicity
75.8 percent of the mixture consists of component(s) of unknown acute dermal toxicity

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

2.2 Label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : Contains nickel. May produce an allergic reaction.
Safety data sheet available on request.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

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 : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : Does not pose any health hazard under normal conditions of use and as delivered.
Fines particles from processing (grinding, cutting, polishing and welding) may be readily ignitable, or create an explosive atmosphere and needs to be controlled.
Fine particles in contact with water or humidity in air may release flammable gases in hazardous quantities, and may in some cases set off thermal reactions in contact with iron oxide and certain other metal oxides.
For liquid aluminium, there is a risk of explosions if in contact with water, and reacts violently in contact with rust, oxides of some other metals or nitrate.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
	The REACH Registrants associated to each REACH number are listed below this table.*				
aluminium, non flammable solid	REACH #: 01-2119529243-45 EC: 231-072-3 CAS: 7429-90-5	≥75	Not classified.	-	[3]
silicon	EC: 231-130-8 CAS: 7440-21-3	≤15	Not classified.	-	[3]
zinc	REACH #: 01-2119467174-37 EC: 231-175-3 CAS: 7440-66-6	≤12	Not classified.	-	[3]
copper	REACH #: 01-2119480154-42 EC: 231-159-6 CAS: 7440-50-8	≤10	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 100 M [Chronic] = 10	[1]
Magnesium, non flammable solid	REACH #: 01-2119537203-49 EC: 231-104-6 CAS: 7439-95-4	≤5	Not classified.	-	[3]
iron	EC: 231-096-4 CAS: 7439-89-6	≤3	Not classified.	-	[3]
manganese	REACH #: 01-2119449803-34 EC: 231-105-1 CAS: 7439-96-5	≤2	Not classified.	-	[2]
Nickel	EC: 231-111-4 CAS: 7440-02-0 Index: 028-002-00-7	<1	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372	-	[1]
lithium	EC: 231-102-5 CAS: 7439-93-2 Index: 003-001-00-4	<1	Water-react. 1, H260 Skin Corr. 1B, H314 Eye Dam. 1, H318 EUH014	-	[1]
silver	EC: 231-131-3 CAS: 7440-22-4	≤0.7	Not classified.	-	[2]
titanium	REACH #: 01-2119484878-14	≤0.5	Not classified.	-	[3]

SECTION 3: Composition/information on ingredients

	EC: 231-142-3 CAS: 7440-32-6				
bismuth	EC: 231-177-4 CAS: 7440-69-9	≤0.5	Not classified.	-	[3]
strontium	EC: 231-133-4 CAS: 7440-24-6	≤0.5	Not classified.	-	[3]
chromium	EC: 231-157-5 CAS: 7440-47-3	≤0.5	Not classified.	-	[2]
Zirconium	REACH #: 01-2119490102-49 EC: 231-176-9 CAS: 7440-67-7	≤0.5	Not classified.	-	[3]
vanadium	EC: 231-171-1 CAS: 7440-62-2	≤0.5	Not classified.	-	[3]
lead	EC: 231-100-4 CAS: 7439-92-1	≤0.1	Repr. 1A, H360FD Lact., H362 STOT RE 1, H372 (blood system, central nervous system (CNS), kidneys) (inhalation) **See Section 16 for the full text of the H statements declared above.**	Repr. 1A, H360D: C ≥ 0.03% STOT RE 1, H372: C ≥ 0.5%	[1] [2] [3]

***REACH Registrants**

Al, Zn, Cu, Mg, Mn, Ti, Zr: Constellium Issoire (Only Representative Constellium Rolled Products Ravenswood, LLC)
Al, Zn, Mg: Constellium Neuf Brisach
Al, Mg: Constellium Singen

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance with carcinogenic, mutagenic or reproductive toxicity properties
[4] Additional disclosure due to company policy

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. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

SECTION 4: First aid measures

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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 : This product does not present fire or explosion hazards as shipped. Small chips, dust and fines may be ignitable.
Avoid sparks and prevent electrostatic charges from accumulating. Use an extinguishing agent suitable for the surrounding fire.Use an extinguishing agent suitable for the surrounding fire.Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone.

Unsuitable extinguishing media : Do not use water or foam. Halogen (HCFC) extinguisher.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised 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 spilt 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 material for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled 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

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid release to the environment.

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. 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 unlabelled 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.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
manganese	**EU OEL (Europe, 1/2022) [Manganese and inorganic manganese compounds]** TWA 8 hours: 0.05 mg/m³ ((as manganese)). Form: Respirable fraction. TWA 8 hours: 0.2 mg/m³ ((as manganese)). Form: Inhalable fraction.
silver	**EU OEL (Europe, 1/2022)** TWA 8 hours: 0.1 mg/m³.
chromium	**EU OEL (Europe, 1/2022) [Chromium Metal, Inorganic Chromium (II) Compounds and Inorganic Chromium (III) Compounds (insoluble)]** TWA 8 hours: 2 mg/m³.
lead	**EU Biological limit values (Europe, 12/2017) [lead and its ionic compounds]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **EU OEL (Europe, 2/2017) [inorganic lead and its compounds]** TWA 8 hours: 0.15 mg/m³.

Biological exposure indices

Product/ingredient name	Exposure indices
lead	**EU Biological limit values (Europe, 12/2017) [lead and its ionic compounds]** BEI surveillance: 40 µg/100 ml, lead [in blood]. BLV: 70 µg/100 ml, lead [in blood].

Recommended monitoring procedures : 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
aluminium, non flammable solid	DNEL	Long term Inhalation	3.72 mg/m³	Workers	Local
	DNEL	Long term Inhalation	3.72 mg/m³	Workers	Systemic
	DNEL	Long term Oral	3.95 mg/kg bw/day	General population	Systemic
copper	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

SECTION 8: Exposure controls/personal protection

	DNEL	Short term Dermal	273 mg/kg bw/day	Workers	Systemic
Magnesium, non flammable solid	DNEL	Short term Dermal	1.25 mg/cm²	General population	Local
	DNEL	Long term Dermal	1.25 mg/cm²	General population	Local
	DNEL	Long term Dermal	2.5 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	2.5 mg/cm²	Workers	Local
	DNEL	Long term Dermal	2.5 mg/cm²	Workers	Local
	DNEL	Long term Oral	3.6 mg/kg bw/day	General population	Systemic
	DNEL	Short term Inhalation	5 mg/m³	General population	Local
	DNEL	Long term Inhalation	5 mg/m³	General population	Local
	DNEL	Short term Inhalation	5 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m³	General population	Systemic
	DNEL	Long term Dermal	5 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	10 mg/m³	Workers	Local
	DNEL	Long term Inhalation	10 mg/m³	Workers	Local
	DNEL	Short term Inhalation	10 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	10 mg/m³	Workers	Systemic
	DNEL	Short term Dermal	40 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	80 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Oral	100 mg/kg bw/day	General population	Systemic
iron	DNEL	Long term Oral	0.71 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1.5 mg/m³	General population	Local
	DNEL	Long term Inhalation	3 mg/m³	Workers	Local
manganese	DNEL	Long term Inhalation	0.041 mg/m³	General population	Local
	DNEL	Long term Dermal	0.0021 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.00414 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.79 µg/m³	General population	Systemic
	DNEL	Long term Inhalation	10.1 µg/m³	Workers	Systemic
	DNEL	Long term Oral	91.4 µg/kg bw/day	General population	Systemic
lithium	DNEL	Long term Oral	1.2 mg/kg	General	Systemic

SECTION 8: Exposure controls/personal protection

			bw/day	population	
	DNEL	Long term Inhalation	1.8 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	4.2 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	12 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	12 mg/kg bw/day	Workers	Systemic
silver	DNEL	Long term Inhalation	0.0023 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	0.0076 mg/m³	Workers	Systemic
	DNEL	Long term Oral	0.11 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.0023 mg/m³	General population	Local
	DNEL	Long term Inhalation	0.0076 mg/m³	Workers	Local
titanium	DNEL	Long term Oral	350 mg/kg bw/day	General population	Systemic
bismuth	DNEL	Long term Inhalation	13.1 mg/m³	Workers	Systemic
	DNEL	Long term Oral	13.3 mg/kg bw/day	General population	Systemic
strontium	DNEL	Long term Inhalation	0.34 mg/m³	General population	Systemic
	DNEL	Long term Oral	0.396 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1.16 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	39.6 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	66 mg/kg bw/day	Workers	Systemic
chromium	DNEL	Long term Inhalation	0.027 mg/m³	General population	Local
	DNEL	Long term Inhalation	0.5 mg/m³	Workers	Local
Zirconium	DNEL	Long term Inhalation	2.5 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m³	Workers	Systemic
	DNEL	Long term Oral	5.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	5.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	11 mg/kg bw/day	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

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.

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. 1 - 4 hours (breakthrough time): Butyl rubber gloves. Nitrile gloves.

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. Recommended: Filter type: P3

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. [Massive metal. (1013 mbar / 20°C)]

Colour : Silver. Greyish.

Odour : Odourless.

Odour threshold : Not available.

Melting point/freezing point : 660°C

Boiling point or initial boiling point and boiling range : 2467°C

Flammability : Not available.

Lower and upper explosion limit : Not applicable.

Flash point : Not applicable.

SECTION 9: Physical and chemical properties

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

pH : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C): Not available.

Solubility :

Media	Result
cold water	Not soluble
hot water	Not soluble

Partition coefficient n-octanol/water (log Pow) : Not applicable.

Vapour pressure : Not available.

Relative density : Not available.

Density : 2.7 g/cm³

Relative vapour density : Not applicable.

Particle characteristics

Median particle size : Not available.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.

Oxidising properties : Not available.

9.2.2 Other safety characteristics

Not applicable.

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. Molten metals reacts violently with water to generate flammable and explosive hydrogen gas. Suspensions of aluminum dust in air may pose a severe explosion hazard, especially in a confined atmosphere.
Under normal conditions of storage and use, hazardous polymerisation will not occur.

10.4 Conditions to avoid : Avoid melting wet or cold materials as molten metal may cause explosions in contact with water or wet surfaces. Suspensions of aluminum dust in air may pose a severe explosion hazard, especially in a confined atmosphere.

10.5 Incompatible materials : Reactive or incompatible with the following materials: oxidising materials, acids, alkalis and moisture.
halogenated compounds

SECTION 10: Stability and reactivity

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
aluminium, non flammable solid	LD50 Oral	Rat	>5000 mg/kg	-
silicon	LD50 Oral	Rat	3160 mg/kg	-
copper	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.11 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
iron	LD50 Oral	Rat	30 g/kg	-
manganese	LC50 Inhalation Dusts and mists	Rat	5.14 mg/l	4 hours
	LD50 Oral	Rat	9 g/kg	-
silver	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.6 mg/l	4 hours
	LD50 Oral	Rat - Male, Female	3702 mg/kg	-
bismuth	LD50 Oral	Rat	5 g/kg	-
Zirconium	LD50 Oral	Rat - Female	>5000 mg/kg	-
vanadium	LD50 Oral	Rat - Female	>2000 mg/kg	-
lead	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.05 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
silicon	3160	N/A	N/A	N/A	N/A
iron	30000	N/A	N/A	N/A	N/A
manganese	9000	N/A	N/A	N/A	5.14
silver	3702	N/A	N/A	N/A	N/A
bismuth	5000	N/A	N/A	N/A	N/A

Irritation/Corrosion

Conclusion/Summary : Not available.

Respiratory or skin sensitization

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

SECTION 11: Toxicological information

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Nickel lead	Category 1 Category 1	- inhalation	- blood system, central nervous system (CNS), kidneys

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Dermal.

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 : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

SECTION 11: Toxicological information

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Distribution : Oral uptake < 0.1%, nearly insoluble in lung fluids. Most absorbed aluminium is rapidly excreted through urine. Main deposit in body is in bone structure.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Aluminium Metal Alloys	EC50 >100 mg/l	Algae	72 hours
	EC50 >100 mg/l	Daphnia	48 hours
	LC50 >100 mg/l	Fish	96 hours
aluminium, non flammable solid	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - *Ceratophyllum demersum*	3 days
zinc	Acute EC50 10000 µg/l Fresh water	Aquatic plants - *Lemna minor*	4 days
	Acute EC50 34 µg/l Fresh water	Crustaceans - *Ceriodaphnia dubia* - Neonate	48 hours
	Acute IC50 65 µg/l Marine water	Algae - *Nitzschia closterium* - Exponential growth phase	4 days
	Acute LC50 68 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 12.21 µg/l Marine water	Fish - *Periophthalmus waltoni* - Adult	96 hours
	Chronic EC10 6.3 µg/l	Daphnia - *Daphnia magna* - Neonate	21 days
	Chronic NOEC 0.25 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - *Ceratophyllum demersum*	3 days
	Chronic NOEC 178 µg/l Marine water	Crustaceans - *Palaemon elegans*	21 days
	Chronic NOEC 2.6 µg/l Fresh water	Fish - *Cyprinus carpio*	4 weeks
iron	Chronic NOEC 100 mg/l Marine water	Algae - *Glenodinium halli*	72 hours
manganese	Acute LC50 29000 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 354 mg/l Fresh water	Fish - *Poecilia reticulata*	96 hours
	Chronic NOEC 1.7 mg/l Fresh water	Daphnia - *Ceriodaphnia dubia*	8 days
Nickel	Acute EC50 2 ppm Marine water	Algae - *Macrocystis pyrifera* - Young	4 days
	Chronic NOEC 100 mg/l Marine water	Algae - *Glenodinium halli*	72 hours
lithium	Chronic NOEC 1.7 mg/l Fresh water	Daphnia - *Daphnia magna*	21 days
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
	Chronic NOEC 5 mg/l Marine water	Algae - *Glenodinium halli*	72 hours

SECTION 12: Ecological information

bismuth	Acute EC50 >100 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
chromium	Acute EC50 0.2 ppm Marine water	Algae - *Bacillariophyta*	72 hours
	Acute EC50 5 ppm Marine water	Algae - *Macrocystis pyrifera* - Young	4 days
	Acute EC50 35000 µg/l Fresh water	Aquatic plants - *Lemna minor*	4 days
	Acute LC50 45 µg/l Fresh water	Crustaceans - *Ceriodaphnia reticulata*	48 hours
	Acute LC50 22 µg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 13.9 ppm Fresh water	Fish - *Anguilla rostrata*	96 hours
	Chronic NOEC 50 mg/l Marine water	Algae - *Glenodinium halli*	72 hours
	Chronic NOEC 5 ppb Fresh water	Daphnia - *Daphnia magna* - Neonate	21 days
	Chronic NOEC 0.19 µg/l Fresh water	Fish - *Cyprinus carpio*	4 weeks
vanadium	Chronic NOEC 500 mg/l Marine water	Algae - *Glenodinium halli*	72 hours
lead	Acute EC50 105 ppb Marine water	Algae - *Chaetoceros sp.* - Exponential growth phase	72 hours
	Acute EC50 0.489 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Acute EC50 8000 µg/l Fresh water	Aquatic plants - *Lemna minor*	4 days
	Acute LC50 530 µg/l Fresh water	Crustacea - *Ceriodaphnia reticulata*	48 hours
	Acute LC50 0.594 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 0.44 ppm Fresh water	Fish - *Cyprinus carpio* - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 0.25 mg/l Marine water	Algae - *Ulva pertusa*	96 hours
	Chronic NOEC 0.03 µg/l Fresh water	Fish - *Cyprinus carpio*	4 weeks

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
silicon	57 to 77	-	High
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

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

SECTION 12: Ecological information

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised 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 : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised 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. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID 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 Maritime 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 authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
lead	Toxic to reproduction	Recommended	D(2021) 4569-DC	4/12/2023

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
nickel	<0,1	27
lead	≤0,03	72

Labelling : Not applicable.

Other EU regulations

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

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

Explosive precursors : This product is regulated by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

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.

SECTION 15: Regulatory information

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

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
vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data : Regulation (EC) No. 1272/2008 [CLP]; European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), concluded in Geneva on 30 September 1957 plus amendments (Uniform text: Journal of Laws 27/2009 pos. 162 plus amendments); European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN); Occupational exposure limits; International regulations

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

Classification	Justification
Not classified.	

Full text of abbreviated H statements

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H351	Suspected of causing cancer.
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.
EUH014	Reacts violently with water.

Full text of classifications [CLP/GHS]

SECTION 16: Other information

Carc. 2	CARCINOGENICITY - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Lact.	REPRODUCTIVE TOXICITY - Effects on or via lactation
Repr. 1A	REPRODUCTIVE TOXICITY - Category 1A
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Sens. 1	SKIN SENSITISATION - Category 1
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
Water-react. 1	SUBSTANCES AND MIXTURES WHICH IN CONTACT WITH WATER EMIT FLAMMABLE GASES - Category 1

Training advice : Ensure operatives are trained to minimise exposures. Training staff on good practice.

Date of issue/ Date of revision : 20/11/2024

Date of previous issue : 13/01/2020

Version : 5

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.