

Rio Tinto

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

1.1 Product identifier

Product name	: Spent Potlining – Cut 3 – Mixed
Chemical name	: Spent Potlining – Cut 3 – Mixed
EC number	: Not available.
CAS number	: Not available.
Product code	: 215
Product type	: Solid.
Other means of identification	: Mixed 1st and 2nd cut SPL, Used potliner, Spent cathodes, Spent Cell Liner, SCL, Spent Cell Lining, Spent Pot Liner, Pot Bottoms.

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

Material uses	: Industrial applications: waste
----------------------	----------------------------------

1.3 Details of the supplier of the safety data sheet

Rio Tinto Alcan
Primary Metal Europe-Middle East-Africa
725, Aristide Bergès
Voreppe, 38341, France

Rio Tinto Alcan Inc.
Primary Metal Group
1188, Sherbrooke West
Montreal (Quebec), H3A3G2, Canada
Tel: +1 514-848-8000

e-mail address of person responsible for this SDS : rta.msds@riotinto.com

1.4 Emergency telephone number

Telephone number : +44 (0) 1235 239 670 (Rio Tinto Alcan)
For advice on chemical emergencies, spillages, fires or First Aid.

EU States Emergency Helpdesks: http://echa.europa.eu/help/nationalhelp_contact_en.asp

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Waste

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

Water-react. 3, H261
Acute Tox. 3, H301
Skin Irrit. 2, H315
Eye Dam. 1, H318
Lact., H362
STOT RE 1, H372
Aquatic Chronic 3, H412

SECTION 2: Hazards identification

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

This product is a waste of the aluminium smelting process and is exempt from Regulation (EC) No. 1907/2006 [REACH] and Regulation (EC) No. 1272/2008 [CLP/GHS]. It needs to be treated to recover materials for possible reutilization. Recovered products may be subject to classification according to Regulation (EC) No. 1272/2008 [CLP/GHS].

Classification according to Directive 67/548/EEC [DSD]

F; R15
T; R48/23/25
Xn; R22
Xi; R36
R64
R52/53

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

See Section 11 for more detailed information on health effects and symptoms. See Section 12 for environmental precautions.

2.2 Label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: In contact with water releases flammable gases.
Toxic if swallowed.
Causes serious eye damage.
Causes skin irritation.
May cause harm to breast-fed children.
Causes damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary statements

General

: Protect from moisture.

Prevention

: Obtain special instructions before use. Wear protective gloves. Wear eye or face protection. Avoid release to the environment. Do not breathe dust. Avoid contact during pregnancy or while nursing.

Response

: IF SWALLOWED: Immediately call a POISON CENTER or physician. IF IN EYES: Immediately call a POISON CENTER or physician.

Storage

: Store in a dry place. Store in a well-ventilated place.

Disposal

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

Hazardous ingredients

: sodium fluoride
trisodium hexafluoroaluminate
salts of hydrogen cyanide

Supplemental label elements

: Contact with acids liberates very toxic gas.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

: Not applicable.
P: Not available. B: Not available. T: Not available.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

: Not applicable.
vP: Not available. vB: Not available.

SECTION 2: Hazards identification

Other hazards which do not result in classification : In contact with water, release flammable gases (ammonia, phosphine, hydrogen and methane).
 Contact with acids release toxic gases: hydrogen cyanide (HCN), sulfides (H₂S) and fluorides (HF).
 Causes skin, eye and upper respiratory tract irritation. Dust may cause damage to organs through prolonged or repeated exposure.

Depending on the type of handling and use (e.g. grinding, drying), airborne respirable crystalline silica (quartz - cristobalite) may be generated. Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness. Occupational exposure to respirable crystalline silica dust should be monitored and controlled.

SECTION 3: Composition/information on ingredients

3.1 Substances : Waste

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
carbon	EC: 231-153-3 CAS: 7440-44-0	5 - 40	Not classified.	Not classified.	[A]
aluminium oxide	REACH #: 01-2119529248-35 EC: 215-691-6 CAS: 1344-28-1	10 - 30	Not classified.	Not classified.	[A]
trisodium hexafluoroaluminate	REACH #: 01-2119511565-43 EC: 237-410-6 CAS: 13775-53-6 Index: 009-016-00-2	5 - 20	T; R48/23/25 Xn; R20 R64 N; R51/53	Acute Tox. 4, H332 Lact., H362 STOT RE 1, H372 Aquatic Chronic 2, H411	[A]
sodium fluoride	EC: 231-667-8 CAS: 7681-49-4 Index: 009-004-00-7	5 - 20	T; R25 Xi; R36/38 R32	Acute Tox. 2, H300 Skin Irrit. 2, H315 Eye Irrit. 2, H319 EUH032	[A]
Silicic acid, aluminum sodium salt	EC: 215-684-8 CAS: 1344-00-9	1 - 10	Not classified.	Not classified.	[A]
silicon carbide	REACH #: 01-2119402892-42 EC: 206-991-8 CAS: 409-21-2	0 - 10	Not classified.	Not classified.	[A]
andalusite	EC: 235-352-6 CAS: 12183-80-1	<10	Not classified.	Not classified.	[A]
calcium oxide	EC: 215-138-9 CAS: 1305-78-8	1 - 7	Xi; R41, R37/38	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335	[A]
aluminium	REACH #: 01-2119529243-45 EC: 231-072-3 CAS: 7429-90-5	0 - 5	F; R15, R17	Not classified.	[A]
Quartz (SiO ₂)	EC: 238-878-4 CAS: 14808-60-7	<5	Xn; R48/20	STOT RE 1, H372 (lungs) (inhalation)	[A]
Trilithium hexafluoroaluminate	EC: 237-509-4 CAS: 13821-20-0	0 - 4	Not classified.	Not classified.	[A]
lithium fluoride	EC: 232-152-0 CAS: 7789-24-4	0 - 2.5	T; R25	Acute Tox. 3, H301	[A]
diiron trioxide	EC: 215-168-2 CAS: 1309-37-1	1 - 2	Not classified.	Not classified.	[A]
aluminium nitride	EC: 246-140-8 CAS: 24304-00-5	0 - 2	Not classified.	Not classified.	[A]

SECTION 3: Composition/information on ingredients

tetraaluminium triacarbide	EC: 215-076-2 CAS: 1299-86-1	<2	F; R15	Water-react. 2, H261	[A]
dipotassium oxide	EC: 235-227-6 CAS: 12136-45-7	0.8	C; R35	Skin Corr. 1A, H314 Eye Dam. 1, H318	[A]
salts of hydrogen cyanide	CAS: 57-12-5 Index: 006-007-00-5	0 - 0.2	T+; R26/27/28 R32 N; R50/53	Acute Tox. 2, H300 Acute Tox. 1, H310 Acute Tox. 2, H330 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH032	[A]
titanium dioxide	EC: 236-675-5 CAS: 13463-67-7	0 - 0.1	Not classified.	Not classified.	[A]
manganese dioxide	EC: 215-202-6 CAS: 1313-13-9 Index: 025-001-00-3	0 - 0.02	Xn; R20/22	Acute Tox. 4, H302 Acute Tox. 4, H332	[A]
beryllium compounds	-	<0.005	Carc. Cat. 2; R49 T+; R26 T; R25, R48/23 Xi; R36/37/38 R43	Acute Tox. 3, H301 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Carc. 1B, H350i (inhalation) STOT SE 3, H335 STOT RE 1, H372 (lungs) (inhalation) Aquatic Chronic 2, H411	[A]
			See Section 16 for the full text of the R-phrases declared above.	See Section 16 for the full text of the H statements declared above.	

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.

Additional information

See annex for more detailed composition.

Type

[*] Substance

[A] Constituent

[B] Impurity

[C] Stabilising 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

- : Get medical attention immediately. Call a poison center or physician. 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 20 minutes. Chemical burns must be treated promptly by a physician.

Inhalation

- : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed.

SECTION 4: First aid measures

- The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. 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 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Chemical burns must be treated promptly by a physician. 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.
- 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. Gloves should be worn when removing clothing to prevent additional exposure.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Irritating to eyes.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Irritating to skin.
- Ingestion** : Irritating to mouth, throat and stomach. Toxic if swallowed.

Over-exposure signs/symptoms

- Eye contact** : Pain, watering.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : redness
- Ingestion** : Adverse symptoms may include the following:
skeletal malformations
May cause harm to breast-fed children.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical or CO₂. Cover with dry earth, sand or other non-combustible material.
- Unsuitable extinguishing media** : Do not use water.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In contact with water releases flammable gases. Runoff to sewer may create fire or explosion hazard.

SECTION 5: Firefighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
metal oxide/oxides
sulfur 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. First move people out of line-of-sight of the scene and away from windows. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk.

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. Fire-fighters' protective clothing will only provide limited protection.

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. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Keep away from water. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 spill material and runoff and contact with soil, waterways, drains and sewers. 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 : Recycle, if possible. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. If material is wet: Use spark-proof tools and explosion-proof equipment. Waste must be disposed of according to applicable regulations.

Large spill : Recycle, if possible. Approach the release from upwind. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Avoid creating dusty conditions and prevent wind dispersal. If material is wet: Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Waste must be disposed of according to applicable regulations.

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). Do not get in eyes or on skin or clothing. Avoid release to the environment. Use only with adequate ventilation. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use only non-sparking tools. Keep away from acids. Protect from moisture.
- 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 a segregated and approved area. Store locked up. Eliminate all ignition sources. Keep away from water or moist air. Store so as to avoid dust generation and dispersal.

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
C2: Toxic	50	200

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
sodium fluoride	EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values TWA: 2.5 mg/m ³ 8 hours.
trisodium hexafluoroaluminate	ACGIH TLV (United States, 3/2015). TWA: 2.5 mg/m ³ , (as F) 8 hours
silicon carbide	TWA: 1 mg/m ³ 8 hours. Form: Respirable fraction ACGIH TLV (United States, 3/2015). TWA: 10 mg/m ³ 8 hours. Form: Inhalable fraction TWA: 0.1 f/cc 8 hours. Form: Respirable fibers: length greater than 5 µm; aspect ratio equal to or greater than 3:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination. TWA: 3 mg/m ³ 8 hours. Form: Respirable fraction
Quartz (SiO ₂)	ACGIH TLV (United States, 3/2015). TWA: 0.025 mg/m ³ 8 hours. Form: Respirable fraction
aluminium	ACGIH TLV (United States, 3/2015). TWA: 1 mg/m ³ 8 hours. Form: Respirable fraction
lithium fluoride	EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values TWA: 2.5 mg/m ³ 8 hours.
diiron trioxide	ACGIH TLV (United States, 3/2015).

SECTION 8: Exposure controls/personal protection

TWA: 5 mg/m³ 8 hours. Form: Respirable fraction

Recommended monitoring procedures : A recommended practice for persons with continual high exposure to this dust is, aside from appropriate protective clothing and use of a NIOSH and/or CEN approved respiratory protective device, to undergo a periodic medical examination by a physician specialized in occupational medicine. This exam may include the measurement of urinary fluoride levels.

ACGIH recommends that pre-shift urinary fluorides levels should not exceed 2 mg/g of creatinine and post-shift should not exceed 3 mg/g of creatinine for an 8 hour shift.

Medical surveillance for beryllium is recommended for employees exposed to concentration higher than 0.1 µg/m³.

NIOSH = National Institute for Occupational Safety and Health

CEN = European Committee for Standardisation

ACGIH = American Conference of Governmental Industrial Hygienists

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Not applicable.	-	-	-	-	-

PNECs

No PECs available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour 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. Engineering controls may be required to control the primary or secondary risks associated with this product. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits.

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: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Wear suitable 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.

SECTION 8: Exposure controls/personal protection

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Solid. [Chunks/Large pieces]
Colour	: Off-white./Grey to Black
Odour	: Ammoniacal. [Slight]
Odour threshold	: 0.04 to 57 ppm (Ammonia.)
pH	: Not applicable.
Melting point/freezing point	: Not applicable.
Initial boiling point and boiling range	: Not applicable.
Flash point	: Not applicable.
Evaporation rate	: Not applicable.
Flammability (solid, gas)	: Flammable in the presence of the following materials or conditions: moisture.
Upper/lower flammability or explosive limits	: Not applicable.
Vapour pressure	: Not applicable.
Vapour density	: Not available.
Bulk density	: Not available.
Granulometry	: Not available.
Relative density	: 2 to 2.5
Solubility(ies)	: Very slightly soluble in the following materials: cold water.
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not applicable.
Viscosity	: Not applicable.
Explosive properties	: Not available.
Oxidising properties	: Not available.
Molecular weight	: Not applicable.

9.2 Other information

No additional information.

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 may not be stable under certain conditions of storage or use. See "Possibility of Hazardous Reactions" for further information.

SECTION 10: Stability and reactivity

- 10.3 Possibility of hazardous reactions** : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with water
contact with acids
Reactions may include the following:
liberation of toxic gas
liberation of flammable gas
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, acids, alkalis and moisture.
Incompatible with water (evolving flammable hydrogen gas), oxidising agents, acids (evolving hydrogen sulfide, hydrogen cyanide) alkalis, heat and ignition sources.
- 10.6 Hazardous decomposition products** : In contact with water releases flammable gases. Contact with acids liberates very toxic gas.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
lithium fluoride	LD50 Oral	Rat	143 mg/kg	-
Quartz (SiO ₂)	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
trisodium hexafluoroaluminate	LD50 Oral	Rat	4470 µg/kg Sprague-Dawley rats (4hr)	-
sodium fluoride	LD50 Oral	Rat	31 mg/kg	-

Conclusion/Summary : Toxic to humans or animal life.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sodium fluoride	Eyes - Moderate irritant	Rabbit	-	-	-

Conclusion/Summary

Skin : Causes skin irritation.

Eyes : Irritant

Sensitisation

Conclusion/Summary

Skin : High exposure to Beryllium caused by dust and fumes inhalation may cause sensitization.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : Contains material which can cause cancer.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
beryllium	Category 1	Inhalation	lungs
Quartz (SiO ₂)	Category 1	Inhalation	lungs
trisodium hexafluoroaluminate	Category 1	Not determined	Not determined

Aspiration hazard

Not applicable.

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

Potential acute health effects

- Eye contact** : Irritating to eyes.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Irritating to skin.
- Ingestion** : Irritating to mouth, throat and stomach. Toxic if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Pain, watering.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : redness
- Ingestion** : Adverse symptoms may include the following:
skeletal malformations
May cause harm to breast-fed children.

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

Short term exposure

- Potential immediate effects** : Causes skin, eye and upper respiratory tract irritation.
- Potential delayed effects** : No known significant effects or critical hazards.

Long term exposure

- Potential immediate effects** : Respiratory diseases.
- Potential delayed effects** : Increase fluorides in bones, lung diseases.

Potential chronic health effects

Conclusion/Summary : Prolonged overexposure to fluorides may increase fluoride content of bones and teeth, and may result in fluorosis, with mottling of teeth (in children) and brittleness of bones. High exposure to Beryllium caused by dust and fumes inhalation may cause sensitization. Beryllium sensitization may result in a serious progressive chronic lung disease called Chronic Beryllium Disease (CBD) or berylliosis. Prolonged contact may result in skin irritation and rashes.

Prolonged and/or massive exposure to respirable crystalline silica-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by deposition in the lungs of fine respirable particles of crystalline silica.

In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)

In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline

SECTION 11: Toxicological information

silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003).

So there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required (see section 16 below).

- General** : May cause eye and skin irritation. Repeated inhalation of dust can produce varying degrees of respiratory irritation or lung damage.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : May cause harm to breast-fed children.
- Fertility effects** : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Result	Species	Exposure
salts of hydrogen cyanide	-	Acute EC50 258 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	-	Acute EC50 2.52 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	-	Acute LC50 120 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Chronic NOEC 29 µg/l Marine water	Fish - Cyprinodon variegatus - Embryo	28 days
aluminium	OECD	EC50 >100 mg/l	Algae - Selenastrum capricomutum	72 hours
	OECD	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
trisodium hexafluoroaluminate	OECD	EC50 >100 mg/l	Fish - Salmo trutta	96 hours
	-	Acute EC50 5 mg/l Fresh water	Crustaceans - Simocephalus serrulatus - Larvae	48 hours
	-	Acute EC50 10 mg/l Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
sodium fluoride	-	Acute LC50 47 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute EC50 98000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	-	Acute LC50 >300000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	-	Acute LC50 51000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
-	Chronic NOEC 110000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours	

Conclusion/Summary : Soluble fluorides may result from the leaching of that product. No acute or chronic classification is appropriate for Al metal massive based on non toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminum metal, oxide and hydroxide at loadings of 100 mg/L at pH 8-8.5 (maximum solubility of Al expected).

12.2 Persistence and degradability

Conclusion/Summary : Low dissociation of cyanides in nature.

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
aluminium	-	-	-

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.
P: Not available. B: Not available. T: Not available.

vPvB : Not applicable.
vP: Not available. vB: Not available.

12.6 Other adverse effects : 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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
16 11 01*	carbon-based linings and refractories from metallurgical processes containing hazardous substances

Packaging

Methods of disposal : Not applicable





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.

United Kingdom : Special waste under the "Environment Protection Special Waste Regulations 1996 (SI 1996/972)". Dispose of this product must be in accordance with the " Environmental (Duty of Care) Regulations 1991 (SI 1991/2839)

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	3170	3170	3170	3170

SECTION 14: Transport information

14.2 UN proper shipping name	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS (tetraaluminium tricarbide)	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS (tetraaluminium tricarbide)	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS (tetraaluminium tricarbide)	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS (tetraaluminium tricarbide)
14.3 Transport hazard class(es)	4.3 	4.3 	4.3 	4.3 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	No.	Yes.	No.	No.
Additional information	-	The product is only regulated as an environmentally hazardous substance when transported in tank vessels.	-	-

14.6 Special precautions for user : Not applicable.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not applicable.

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

None of the components are listed.

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

Other EU regulations

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

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

Spent Potlining – Cut 3 – Mixed

SECTION 15: Regulatory information

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
Spent Potlining – Cut 3 – Mixed	-	-	Lact., H362	-

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

C2: Toxic

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia inventory (AICS) : All components are listed or exempted.

Canada inventory : At least one component is not listed in DSL but all such components are listed in NDSL.

New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

15.2 Chemical safety assessment : Not applicable.

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
- IMSBC = International Maritime Solid Bulk Cargoes Code
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- vPvB = Very Persistent and Very Bioaccumulative

SECTION 16: Other information

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

Classification	Justification
Water-react. 3, H261 Acute Tox. 3, H301 Skin Irrit. 2, H315 Eye Dam. 1, H318 Lact., H362 STOT RE 1, H372 Aquatic Chronic 3, H412	Expert judgment Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements	:	H261 H300 H301 H315 H318 H319 H362 H372 H412	In contact with water releases flammable gases. Fatal if swallowed. Toxic if swallowed. Causes skin irritation. Causes serious eye damage. Causes serious eye irritation. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.
--	---	--	---

Full text of classifications [CLP/GHS]	:	Acute Tox. 2, H300 Acute Tox. 3, H301 Aquatic Chronic 3, H412 EUH032 Eye Dam. 1, H318 Eye Irrit. 2, H319 Lact., H362 Skin Irrit. 2, H315 STOT RE 1, H372 Water-react. 3, H261	ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (oral) - Category 3 LONG-TERM AQUATIC HAZARD - Category 3 Contact with acids liberates very toxic gas. SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 TOXIC TO REPRODUCTION - Effects on or via lactation SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 SUBSTANCES AND MIXTURES, WHICH IN CONTACT WITH WATER, EMIT FLAMMABLE GASES - Category 3
---	---	--	--

Full text of abbreviated R phrases	:	R15- Contact with water liberates extremely flammable gases. R25- Toxic if swallowed. R48/23/25- Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. R22- Harmful if swallowed. R36- Irritating to eyes. R36/38- Irritating to eyes and skin. R32- Contact with acids liberates very toxic gas. R64- May cause harm to breastfed babies. R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
---	---	---

Full text of classifications [DSD/DPD]	:	F - Highly flammable T - Toxic Xn - Harmful Xi - Irritant
---	---	--

Date of issue/ Date of revision	:	12/01/2016
Date of previous issue	:	No previous validation
Version	:	1

Europe / 4.7 / EN-GB

Notice to reader

SECTION 16: Other information

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.