SAFETY DATA SHEET

1. Identification

Product identifier **Titanium CP Family**

Other means of identification

SDS number 1540

Version # 01

Revision date September 25, 2015.

Other means of identification

Synonyms Ti Alloy

Recommended use Metal alloy for multiple production uses

Recommended restrictions For industrial use only.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Alcoa Inc.
201 Isabella Street
Pittsburgh, PA 15212-5858 USA
Health and Safety Tel: 1-412-553-4649
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Emergency Information CHEMTREC: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken); ALCOA: +1-412-553-4001 (24 Hour Emergency Telephone, only English spoken)

Website For a current Safety Data Sheet, refer to Alcoa websites: www.alcoa.com or internally at my.alcoa.com EHS Community

2. Hazard(s) identification

Classification

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

The health effects listed below are not likely to occur unless processing of this product generates dusts. The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

Authority defined hazards Combustible dust

Label elements

Hazard symbol None.

Signal word Warning

Hazard statement The mixture does not meet the criteria for classification.
May form combustible dust concentrations in air.

Precautionary statement

Prevention Prevent dust accumulation to minimize explosion hazard. Wash thoroughly after handling.

Response	IF exposed or concerned: Get medical advice/attention. In case of fire: Use appropriate media for extinction.
Storage	Store in a dry place. Store in a well-ventilated place. Keep cool. Keep container tightly closed.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.
Specific hazards	Non-combustible as supplied. Small chips, fine turnings, and dust from processing may be readily ignitable. Explosion/fire hazards may be present when: • Dust or fines are dispersed in air. • Dust and fines in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces. • Molten metal is in contact with water/moisture. Dust and fumes from processing: Can cause irritation of the eyes, skin, respiratory tract and gastrointestinal tract. Additional health effects from elevated temperature processing (e.g., welding, melting): Dust and fume from processing: Can cause irritation of the upper respiratory tract. Inhalation: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

3. Composition/information on ingredients

Composition comments Complete composition is provided below and may include some components classified as non-hazardous.

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Titanium		7440-32-6	>90
Iron oxide		1309-37-1	<0.1-0.5
Palladium		7440-05-3	<0.1-0.25

Additional information Additional compounds which may be formed during processing are listed in Section 8.

4. First-aid measures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Wash off immediately with soap and plenty of water. Take off contaminated clothing and wash before reuse. Get medical attention if irritation develops or persists.

Inhalation Remove to fresh air. Check for clear airway, breathing, and presence of pulse. If breathing is difficult, provide oxygen. Loosen any tight clothing on neck or chest. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.

Ingestion If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed Dust and fumes from processing: Can cause irritation of the eyes, skin, respiratory tract and gastrointestinal tract.

Additional health effects from elevated temperature processing (e.g., welding, melting): Dust and fumes from processing: Can cause irritation of the upper respiratory tract. Inhalation: Can cause metal fume fever (nausea, chills, fever, shortness of breath and malaise). Symptoms may be delayed. See Section 11 of the SDS for additional information on health hazards.

Medical conditions aggravated by exposure Dust and fume from processing: Asthma, chronic lung disease, and skin rashes.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.

General information If you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media Use Class D extinguishing agents on fines, dust or molten metal.
Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material.

Unsuitable extinguishing media	DO NOT USE water in fighting fires around molten metal. DO NOT USE water spray, carbon dioxide, foam or standard dry chemical extinguishers unless the fire involves only the oily residues from the machining process. DO NOT USE halogenated extinguishing agents on small chips/fines. These fire extinguishing agents will react with the burning material.
Specific hazards arising from the chemical	May be a potential hazard under the following conditions: • Dust clouds may be explosive. Even a minor dust cloud can explode violently. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. • Dust and fines in contact with certain metal oxides (e.g., rust, copper oxide). Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions. • Dust and fines in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces. • Molten metal is in contact with water/moisture.
Special protective equipment and precautions for firefighters	Firefighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Keep up-wind to avoid fumes. Apply extinguishing media carefully to avoid creating airborne dust. Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material. If impossible to extinguish, protect surroundings and allow fire to burn itself out.
General fire hazards	Non-combustible as supplied. Grinding or polishing this material in the absence of oxygen, such as under water, can result in a finely divided material that is ignitable. Small chips, fine turnings, and dust from processing may be readily ignitable. Can generate the following when heated to decomposition or during combustion: toxic and irritating gases. Dust or fines dispersed in the air can be explosive.
Explosion data	
Sensitivity to mechanical impact	None known.
Sensitivity to static discharge	Take precautionary measures against static discharges when there is a risk of dust explosion.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Avoid generating dust. Avoid contact with sharp edges or heated metal. Avoid contact with skin and eyes. Ensure adequate ventilation. Use personal protection recommended in Section 8 of the SDS.
Personal precautions, protective equipment and emergency procedures	
For emergency responders	Avoid generating dust. Avoid contact with sharp edges or heated metal. Avoid contact with skin and eyes. Ensure adequate ventilation. Use personal protection recommended in Section 8 of the SDS.
Evacuation procedures	Keep unnecessary personnel away.
Methods and materials for containment and cleaning up	Isolate area. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Ensure adequate ventilation. Collect scrap for recycling. Avoid the generation of dusts during clean-up. Use dry cleanup procedures. Keep material dry. Pick up mechanically. Use non-sparking tools and explosion-proof equipment. Sweep up and shovel into suitable containers for disposal. Use explosion proof electric equipment. Collect dust using a vacuum cleaner equipped with HEPA filter. Local ventilation and vacuum systems must be designed to handle combustible/explosive dust, fines or particulate. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with combustible/explosive dusts, fines or particulate and must be dedicated to Titanium dust only and should be clearly labeled as such. Vacuum cleaner hoses must be conductive and nozzles or fitting made of conductive, non-sparking material. Do not co-mingle dust, fines or particulate with dust, fines or particulate of other metals/metal oxides. If molten: Use dry sand to contain the flow of material. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use. Allow the spill to cool before remelting as scrap.
Environmental precautions	Do not allow to enter drains, sewers or watercourses. Reuse or recycle material whenever possible.

7. Handling and storage

Handling

Avoid generating dust. Avoid contact with sharp edges or heated metal. Combustible dust clouds may be created where operations produce fine material (dust). Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions.

Use with adequate ventilation. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using the product. Wash hands thoroughly after handling. Use personal protection recommended in Section 8 of the SDS.

Storage

Store in tightly closed containers in a cool, dry area.

Requirements for Processes Which Generate Dusts or Fines

Use water based coolants during machining, grinding, sanding or drilling. Operations producing dust should be equipped with a dust collection system discharging into a water-type dust collector. Good housekeeping practices must be maintained. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. Do not use compressed air to remove settled material from floors, beams or equipment.

Use only non-sparking tools and natural bristle brushes. Store wet and keep away from heat and open flame. Prohibit smoking. Maintain humidity above 50% to prevent an electrostatic build up.

8. Exposure controls/personal protection

Exposure guidelines

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limits

U.S. - OSHA

Components	Type	Value	Form
Iron oxide (CAS 1309-37-1)	TWA	10 mg/m3	Fume.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Byproducts	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	15 mg/m3	Total dust.

ACGIH

Byproducts	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	Total dust

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Components	Type	Value	Form
Iron oxide (CAS 1309-37-1)	TWA	5 mg/m3	Respirable fraction.

General

Minimize breathing oil vapors and mist. Remove oil contaminated clothing; launder or dry-clean before reuse. Remove oil contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at the end of the work period. Oil coating is readily removed from skin with waterless hand cleaners followed by a thorough washing with soap and water.

Appropriate engineering controls

Dust and fumes from processing: Use with adequate explosion-proof ventilation to meet the limits listed in Section 8. Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields. Molten metal: Tinted safety glasses or face shield. Wear a face shield when working with molten material.

Skin protection

Hand protection

Wear impervious gloves to avoid direct skin contact. The need for personal protective equipment (gloves) should be based upon a hazard assessment and recommendations from health / safety professionals. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Other

The need for personal protective equipment should be based upon a hazard assessment and recommendations from health / safety professionals. Personnel who handle and work with molten metal should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

Respiratory protection	Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8. Suggested respiratory protection: P95.
Thermal hazards	Contact with molten material can cause thermal burns. Wear appropriate thermal protective clothing, when necessary. Flame retardant protective clothing is recommended. When material is heated, wear gloves to protect against thermal burns.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Wash contaminated clothing before reuse. Provide eyewash station and safety shower.
Control parameters	Follow standard monitoring procedures.
Environmental exposure controls	Do not allow to enter drains, sewers or watercourses.

9. Physical and chemical properties

Form	Solid.
Color	Metallic. Silver.
Odor	Odorless
Odor threshold	Not applicable
pH	Not applicable
Density	Not available.
Melting point/freezing point	3020 °F (1660 °C)
Initial boiling point and boiling range	5948.6 °F (3287 °C)
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - upper (%)	Not applicable.
Flammability limit - lower (%)	Not applicable.
Explosive properties	Dust can form an explosive mixture in air. Dust accumulation from this product may present an explosion hazard in the presence of an ignition source.
Dust explosion properties	
St class	Very strong explosion.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	Not determined.
Solubility(ies)	Insoluble.
Specific gravity	4.5
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	2192 °F (1200 °C)
Decomposition temperature	Not applicable.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal conditions of use, storage, and transportation.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Small chips, fine turnings, dust, fines or particulate from processing may be readily ignitable. Dry titanium fines collected in cyclones have ignited spontaneously when allowed to fall freely through air. Sump fines can spontaneously ignite when dried.

Incompatible materials	Strong acids. Strong mineral acids. Oxidizing agents (strong) Contact with strong mineral acids could generate flammable hydrogen gas. At abnormally high temperatures, descaling baths of minerals acids and molten alkali salts may cause violent reactions. Titanium surfaces that have been treated with nitric acid, particularly with red fuming nitric acid containing 10-20% nitrogen tetroxide, become pyrophoric and may be explosive. Large titanium shapes will ignite spontaneously on contact with liquid oxygen. Dust and fines from processing: Thermite reactions can occur with oxides of lead, copper, iron, bismuth and certain other metals.
Hazardous decomposition products	Oxides of: Iron, Titanium, Palladium.

11. Toxicological information

Health effects associated with ingredients

Titanium: Generally considered to be biologically inert.

Iron oxide: Chronic overexposures: Can cause benign lung disease (siderosis). Ingestion: Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of the body fluids (metabolic acidosis) and liver damage.

Health effects associated with compounds formed during processing

The following could be expected if welded, remelted or otherwise processed at elevated temperatures:

Titanium dioxide: Can cause irritation of eyes and respiratory tract. Chronic overexposures: Can cause chronic bronchitis. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B).

If the product is heated well above ambient temperatures, oil vapor or mist may be generated. Oil vapor or mist: Can cause irritation of respiratory tract. Acute overexposures: Can cause bronchitis, headache, central nervous system effects (nausea, dizziness and loss of coordination) and drowsiness (narcosis).

Information on likely routes of exposure

Eye contact	Dust from processing: Can cause irritation.
Skin contact	Dust from processing: Can cause irritation.
Inhalation	Dust and fumes from processing: Can cause irritation of the respiratory tract. Additional health effects from elevated temperature processing (e.g., welding, melting): Dust and fumes from processing: Can cause irritation of the upper respiratory tract. Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise). Chronic overexposures: Can cause bronchitis. Effects can be delayed up to 4 - 12 hours.
Ingestion	Dust and fumes from processing: Can cause irritation of the gastrointestinal tract.
Symptoms related to the physical, chemical and toxicological characteristics	Dust and fumes from processing: Can cause irritation of the eyes, skin, respiratory tract and gastrointestinal tract. Additional health effects from elevated temperature processing (e.g., welding, melting): Dust and fumes from processing: Can cause irritation of the upper respiratory tract. Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise). Chronic overexposures: Can cause bronchitis and benign lung diasease.

Information on toxicological effects

Components	Species	Test Results
Iron oxide (CAS 1309-37-1)		
Acute		
Oral		
LD50	Rat	> 10000 mg/kg

Acute toxicity	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Skin corrosion/irritation	Not classified. Based on available data, the classification criteria are not met. Non-corrosive.
Serious eye damage/eye irritation	Not classified. Based on available data, the classification criteria are not met. Dust and fume from processing: Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Respiratory sensitization	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Skin sensitization	Not classified. Based on available data, the classification criteria are not met. Dust and fume from processing: May be irritating to the skin.

Germ cell mutagenicity	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Neurological effects	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Pre-existing conditions aggravated by exposure	Dust or fume from processing Asthma, chronic lung disease, and skin rashes.
Carcinogenicity	Product as shipped: Not classified. Based on available data, the classification criteria are not met. Dust and fumes from welding or elevated temperature processing: Can present a cancer hazard (Titanium dioxide).

IARC Monographs. Overall Evaluation of Carcinogenicity

Iron oxide (CAS 1309-37-1)	3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	Product as shipped: Not classified. Based on available data, the classification criteria are not met.
Routes of exposure	Inhalation. Eye contact. Skin contact.
Specific target organ toxicity - single exposure	Product as shipped: Not classified. Based on available data, the classification criteria are not met. Dust and fumes from processing: May cause irritation to the respiratory system. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.
Specific target organ toxicity - repeated exposure	Product as shipped: Not classified. Based on available data, the classification criteria are not met. Dust and fume from processing: Can cause bronchitis and benign lung disease.
Aspiration hazard	Not classified. Based on available data, the classification criteria are not met. Not an aspiration hazard.
Chronic effects	Product as shipped: Not classified. Based on available data, the classification criteria are not met. Additional health effects from elevated temperature processing: Dust or fume from processing: Chronic overexposures: Can cause bronchitis.

12. Ecological information

Ecotoxicity	No information available.
Persistence and degradability	The product is not readily biodegradable.
Bioaccumulative potential	No data available on bioaccumulation.
Mobility in soil	The product is insoluble in water.
Mobility in general	Not considered mobile.
Other adverse effects	None known.

13. Disposal considerations

Disposal instructions	Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.
Waste codes	RCRA Status: Must be determined at the point of waste generation. If material is disposed as a waste, it must be characterized under RCRA according to 40 CFR, Part 261, or state equivalent in the U.S.
Waste from residues / unused products	If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.
Contaminated packaging	DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Dispose of in accordance with local regulations.

14. Transport information

General Shipping Information

Basic Shipping Information

ID number	-
Proper shipping name	Not regulated
Hazard class	-
Packing group	-

General Shipping Notes

- When "Not regulated", enter the proper freight classification, SDS Number and Product Name onto the shipping paperwork.

Disclaimer

This section provides basic classification information and, where relevant, information with respect to specific modal regulations, environmental hazards and special precautions. Otherwise, it is presumed that the information is not available/not relevant

15. Regulatory information

US federal regulations

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Electrical equipment should meet National Fire Protection Association (NFPA) requirements for locations where material is processed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

US state regulations

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

SDS Status

September 25, 2015: New SDS.

Hazardous Materials Control Committee
Preparer: Jim Perriello, +1-865-977-2051.

SDS System Number: PN989341

Revision date September 25, 2015.

Version # 01

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available.

Other information

• Guide to Occupational Exposure Values 2015, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
• NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, September 2005.
• expub, Expert Publishing, LLC., www.expub.com,
• Ariel, 3E Company, www.3Ecompany.com

• NFPA 484, Standard for Combustible Metals (NFPA phone: 800-344-3555)
• NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
• NFPA 70, Standard for National Electrical Code (Electrical Equipment, Grounding and Bonding)
• NFPA 77, Standard for Static Electricity
NFPA = National Fire Protection Association.

Key/Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan - Existing and New Chemical Substances
EWC	European Waste Catalogue
EPA	Environmental Protective Agency
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
NDSL	Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PIN	Product Identification Number
PMCC	Pensky Marten Closed Cup
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SIMDUT	Système d'Information sur les Matières Dangereuses Utilisées au Travail
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

m meter, cm centimeter, mm millimeter, in inch,
g gram, kg kilogram, lb pound, µg microgram,
ppm parts per million, ft feet

*** End of SDS ***

Hazard statement
May form combustible dust concentrations in air.

Precautionary statement Prevention
Prevent dust accumulation to minimize explosion hazard. Wash thoroughly after handling.

Response
In case of fire: Use appropriate media for extinction.

IF exposed or concerned: Get medical advice/attention.

Storage
Store in a dry place. Store in a well-ventilated place. Keep cool. Keep container tightly closed.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Warning

Supplemental information
Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable.

Explosion/fire hazards may be present when:

- Dust or fines are dispersed in air.
- Dust or fines are in contact with water.
- Molten metal is in contact with water/moisture.

Dust and fumes from processing: Can cause irritation of the eyes, skin, and respiratory tract. Additional health effects from elevated temperature processing (e.g., welding, melting): Dust and fume: Can cause irritation of the respiratory tract and metal fume fever.

FIRE FIGHTING MEASURES: Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material. Use Class D extinguishing agents on fines, dust or molten metal.

DO NOT USE water spray, carbon dioxide, foam or standard dry chemical extinguishers unless the fire involves only the oily residues from the machining process.

DO NOT USE water in fighting fires around molten metal.

DO NOT USE halogenated extinguishing agents on small chips/fines.

These fire extinguishing agents will react with the burning material.

IN CASE OF SPILL: Collect scrap for recycling. Avoid contact with sharp edges or heated metal. Avoid the generation of dusts during clean-up. Avoid contact with skin and eyes. Use dry cleanup procedures. Pick up mechanically. Use non-sparking tools and explosion-proof equipment. Sweep up and shovel into suitable containers for disposal. If molten: Use dry sand to contain the flow of material. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use. Allow the spill to cool before remelting as scrap. Wear appropriate personal protective equipment.

See Alcoa SDS Number 1540.

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