

1. Identification

Product identifier	RIGID CONTAINER SHEET
Other means of identification SDS number	KWAR-05
Version #	01
Revision date	Not Applicable
Other means of identification Synonyms	Bare and Coated RCS * Can Sheet * Tab, End, Closure or Body Stock * D&I Can Stock * Bottlestock * 1050, 1100, 3003, 3004, 3104, 3105, 5019A, 5042, 5050, 5052, 5082, 5182, 5352, 8011, C122, C160, C232, C315, C515, C74D, C87C, C95A, CH14
Recommended use	Cans, ends and bottles for beer, beverage, specialty and food
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer	Kaiser Aluminum - Warrick 4000 W. State Route 66 Newburgh, IN 47629
Emergency Information	CHEMTREC: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken); Kaiser Warrick: +1-877-335-9886 (24 Hour Emergency Telephone, only English spoken)
Website	For a current Safety Data Sheet, refer to Kaiser website: https://www.kaiseraluminum.com/customer-portal/safety-data-sheets/

2. Hazard(s) identification

Physical hazards	
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	Not classified.
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.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information

FIRE FIGHTING MEASURES:
Use Class D extinguishing agents on fines, dust or molten metal.

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 (See Sections 5, 7 and 10 for additional information):

- Dust or fines are dispersed in air.
- Chips, dust or fines are in contact with water.
- Dust and fines are in contact with certain metal oxides (e.g., rust, copper oxide).
- Molten metal in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide).

Combustion of the coatings can generate hydrogen chloride, carbon monoxide, carbon dioxide, chlorinated hydrocarbons and partially oxidized hydrocarbons.

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	%
Aluminum		7429-90-5	>92.5
Magnesium		7439-95-4	≤ 5.4
Manganese		7439-96-5	≤ 1.5
Chromium		7440-47-3	<0.15

Additional Information

Some products are supplied with coatings/paints. Coatings/paints include: vinyl, epoxy, acrylic, polymeric and blended resin.

Some products are supplied with an oil coating.

The percentage of coating/lubricant is below the minimum reporting requirements for OSHA.

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

4. First-aid measures**Eye contact**

Dust and fumes from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

Skin contact

Dust and fume from processing or contact with lubricant/residual oil: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Inhalation

Dust and fumes from processing: 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

Not likely, due to the form of the product.

Most important symptoms/effects, acute and delayed

Dust and fumes: Can cause irritation of eyes, skin and respiratory tract. Contact with residual oil/oil coating: Prolonged or repeated skin contact may cause defatting of the skin and dermatitis.

Medical conditions aggravated by exposure

Asthma, chronic lung disease, and skin rashes.

Indication of immediate medical attention and special treatment needed

No hazards which require special first aid measures.

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 coarse water spray on chips and turnings.

Unsuitable extinguishing media

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.

Specific hazards arising from the chemical	<p>May be a potential hazard under the following conditions:</p> <ul style="list-style-type: none"> • Dust clouds may be explosive. Even a minor dust cloud can explode violently. • Chips, fines and dust in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces. • Dust and fines in contact with certain metal oxides (e.g., rust, copper oxide). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source. • Molten metal in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with certain metal oxides can initiate a thermite reaction. Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions.
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	If impossible to extinguish, protect surroundings and allow fire to burn itself out. Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material.
General fire hazards	This product does not present fire or explosion hazards as shipped. Small chips, fine turnings, and dust from processing may be readily ignitable.
Explosion data	
Sensitivity to mechanical impact	Not applicable.
Sensitivity to static discharge	Dust from processing 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 dust formation. Avoid contact with sharp edges or heated metal. Molten, heated and cold aluminum look alike; do not touch unless you know it is cold. Use personal protection recommended in Section 8 of the SDS.
Personal precautions, protective equipment and emergency procedures For emergency responders	Avoid contact with sharp edges or heated metal. Molten, heated and cold aluminum look alike; do not touch unless you know it is cold. Use personal protection recommended in Section 8 of the SDS.
Evacuation procedures	None necessary. Molten metal: Keep unnecessary personnel away.
Methods and materials for containment and cleaning up	Collect scrap for recycling. 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	No special environmental precautions required.

7. Handling and storage

Handling	Avoid generating dust. Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red. Use personal protection recommended in Section 8 of the SDS.
Storage	Keep material dry.
Requirements for Processes Which Generate Dusts or Fines	<p>If processing of this product generates dust or if extremely fine particulate is generated, obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin F-1 and National Fire Protection Association (NFPA) brochures listed in Section 16.</p> <p>Use non-sparking handling equipment, tools and natural bristle brush. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations (See Section 15).</p> <p>Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with flammable/explosive dusts. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.</p> <p>Do not allow small chunks, fines or dust to contact water, particularly in enclosed areas.</p> <p>Avoid all ignition sources. Good housekeeping practices must be maintained. Do not use compressed air to remove settled material from floors, beams or equipment.</p>

Requirements for Remelting of Scrap Material or Ingot

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops of water can lead to violent explosions.

All tooling, containers, molds and ladles which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use. Any surfaces that may contact molten metal (e.g., concrete) should be specially coated.

Drops of molten metal in water (e.g. from plasma arc cutting), while not normally an explosion hazard, can generate enough flammable hydrogen gas to present an explosion hazard. Vigorous circulation of the water and removal of the particles minimize the hazards.

During melting operations, the following minimum guidelines should be observed:

- Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.
- Store materials in dry, heated areas with any cracks or cavities pointed downwards.
- Preheat and dry large items adequately before charging into a furnace containing molten metal. This is typically done by use of a drying oven or homogenizing furnace. The drying cycle should bring the metal temperature of the coldest item of the batch to 400°F (200°C) and then hold at that temperature for 6 hours.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA Components

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	5 mg/m3	Respirable fraction
		15 mg/m3	Total dust
Chromium (CAS 7440-47-3)	TWA	1 mg/m3	
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Fume

Compounds Formed During Processing

Compounds Formed	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
Chromium (II) compounds	TWA	0.5 mg/m3	(as Cr)
Chromium (III) compounds	TWA	0.5 mg/m3	(as Cr)
Manganese compounds, inorganic	Ceiling	5 mg/m3	(as Mn) Fume
Oil mist, mineral (CAS 8012-95-1)	TWA	5 mg/m3	Mist.

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

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	PEL	5 mg/m3	Respirable fraction.
Compounds Formed During Processing	Type	Value	Form

Hydrogen chloride (CAS 7647-01-0)	Ceiling	7 mg/m3	
		5 ppm	
Magnesium oxide (CAS 1309-48-4)	PEL	15 mg/m3	Total particulate.
Oil mist, mineral (CAS 8012-95-1)	PEL	5 mg/m3	Mist.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Compounds Formed During Processing	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Magnesium oxide (CAS 1309-48-4)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
ACGIH Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA (inhalable fraction)	0.2 mg/m3	(inhalable fraction)
	TWA (respirable fraction)	0.02 mg/m3	(respirable fraction)
Compounds Formed During Processing	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction, as Al
US ACGIH Threshold Limit Values: Ceiling Limit Value: mg/m3 & ppm			
Compounds Formed During Processing	Type	Value	
Hydrogen chloride (CAS 7647-01-0)	Ceiling	2 ppm	
US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units			
Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.
Compounds Formed During Processing	Type	Value	Form
Chromium (III) compounds	TWA	0.5 mg/m3	
Magnesium oxide (CAS 1309-48-4)	TWA	10 mg/m3	Inhalable fraction.
Manganese compounds, inorganic	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.
Oil mist, mineral (CAS 8012-95-1)	TWA	5 mg/m3	Inhalable fraction.
Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	3 mg/m3	Respirable fraction
		10 mg/m3	Total dust
Manganese (CAS 7439-96-5)	TWA	0.05 mg/m3	Total dust.

Components	Type	Value	Form
Compounds Formed During Processing	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	0.02 mg/m ³ 3 mg/m ³	Respirable fraction. Respirable fraction.
Manganese compounds, inorganic	TWA	10 mg/m ³ 0.05 mg/m ³	Total dust. Total dust, as Mn.
Oil mist, mineral (CAS 8012-95-1)	TWA	0.02 mg/m ³ 0.5 mg/m ³	Respirable fraction, as Mn. (8 Hour)

General

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).

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.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear a face shield when working with molten material. Wear safety glasses with side shields.

Skin protection

Hand protection

The need for personal protective equipment (gloves) should be based upon a hazard assessment and recommendations from health / safety professionals. Wear impervious gloves to avoid repeated or prolonged skin contact with residual oils and to avoid any skin injury.

Other

The need for personal protective equipment should be based upon a hazard assessment and recommendations from health / safety professionals.

Respiratory protection

Dust and fumes from processing: 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, Acid gas cartridges - hydrogen chloride.

Thermal hazards

Contact with molten material can cause thermal burns. Hot aluminum does not necessarily glow red. Flame retardant protective clothing is recommended. When material is heated, wear gloves to protect against thermal burns.

Molten metal: Full Face Shield.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Control parameters

Follow standard monitoring procedures.

9. Physical and chemical properties

Form

Solid. Bare and coated coiled sheet.

Color

Not available.

Odor

Odorless

Odor threshold

Not applicable

pH

Not applicable

Density

0.10 - 0.11 lb/in³

Melting point/freezing point

1652 - 2192 °F (900 - 1200 °C)

Initial boiling point and boiling range

Not determined

Flash point

Not applicable

Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - upper (%)	Not applicable
Flammability limit - lower (%)	Not applicable
Explosive properties	Dust clouds may be explosive under certain conditions.
Dust explosion properties	
St class	Very strong explosion.
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not available.
Solubility(ies)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable. Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available.
Viscosity	Not available.

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	Chips, fines, dust and molten metal are considerably more reactive with the following: <ul style="list-style-type: none"> • Water: Slowly generates flammable and explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Water/aluminum mixtures may be hazardous when confined. • Heat: Oxidizes at a rate dependent upon temperature and particle size.
Incompatible materials	Chips, dust, fines or particulate, and molten metal are considerably more reactive with the following: <ul style="list-style-type: none"> • Strong oxidizers: Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten. • Acids and alkalis: Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). • Halogenated compounds: Many halogenated hydrocarbons, including halogenated fire extinguishing agents, can react violently with finely divided or molten aluminum. • Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides): A violent thermite reaction generating considerable heat can occur. Reaction with aluminum fines and dusts requires only very weak ignition sources for initiation. Molten aluminum can react violently with iron oxide without external ignition source. • Iron powder and water: Explosive reaction forming hydrogen gas when heated above 1470°F (800°C).
Hazardous decomposition products	Combustion of the coatings can generate hydrogen chloride, carbon monoxide, carbon dioxide, chlorinated hydrocarbons and partially oxidized hydrocarbons.

11. Toxicological information

Health effects associated with ingredients

Aluminum dust/fines and fumes: Low health risk by inhalation. Generally considered to be biologically inert.

Chromium dust and fumes: Can cause irritation of eye, skin and respiratory tract. Metallic chromium and trivalent chromium: Not classifiable as to their carcinogenicity to humans by IARC.

Some products are supplied with an oil coating or have residual oil from the manufacturing process. Oil: Can cause irritation of skin. Skin contact (prolonged or repeated): Can cause dermatitis.

Health effects associated with compounds formed during processing

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

Alumina (aluminum oxide): Low health risk by inhalation. Generally considered to be biologically inert.

Manganese oxide fumes: Can cause irritation of the eyes, skin, and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Manganese compounds: Chronic overexposures: Can cause inflammation of the lung tissues, scarring of the lungs (pulmonary fibrosis), central nervous system damage, Secondary Parkinson's Disease and reproductive harm in males.

Combustion of the coatings can generate hydrogen chloride.

Hydrogen chloride gas: Can cause severe irritation and corrosive burns of eyes, skin and upper respiratory tract. Acute overexposures: Can cause the accumulation of fluid in the lungs (pulmonary edema).

If the product is heated well above ambient temperatures or machined, 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 and fumes from processing: Can cause irritation.

Skin contact Dust and fumes from processing: Can cause irritation.

Contact with residual oil/oil coating: Prolonged or repeated skin contact may cause defatting of the skin and dermatitis. Additional health effects from elevated temperature processing (e.g., welding, melting): May cause an allergic skin reaction. May cause sensitization by skin contact.

Inhalation Health effects from mechanical processing (e.g., cutting, grinding):
Dust: Can cause irritation of the upper respiratory tract.

Additional health effects from elevated temperature processing (e.g., cutting, grinding):
Combustion of the coatings can generate toxic and irritating gases. Gases: Can cause severe irritation of the respiratory tract. Acute overexposures: Can cause the accumulation of fluid in the lungs (pulmonary edema). Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Ingestion Not likely, due to the form of the product.

Symptoms related to the physical, chemical and toxicological characteristics Product as shipped: Dusts may irritate the respiratory tract, skin and eyes.

Health effects from elevated temperature processing (e.g., welding, melting): 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. Inhalation of aerosol may cause irritation to the upper respiratory tract. Dust and fumes from processing: May cause central nervous system effects. May cause sensitization of susceptible persons by skin contact or by inhalation of dust.

Information on toxicological effects

Components	Species	Test Results
Aluminum (CAS 7429-90-5)		
Acute		
Oral		
LD50	Rat	> 2000 mg/kg
Compounds Formed During Processing		
Aluminum oxide (non-fibrous) (CAS 1344-28-1)		
Acute		
Inhalation		
LC50	Rat	> 2.3 mg/l 7.6 mg/l
Oral		
LD50	Rat	> 5000 mg/kg

Compounds Formed During Processing	Species	Test Results
Hydrogen chloride (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Mouse	1449 mg/kg
Inhalation		
LC50	Mouse	1108 ppm, 1 Hours
	Rat	2810 ppm, 1 Hours
		1405 ppm, 4 Hours
Oral		
LD50	Rabbit	900 mg/kg
Acute toxicity	Not classified. Based on available data, the classification criteria are not met.	
Skin corrosion/irritation	Non-corrosive.	
Serious eye damage/eye irritation	Dust and fume from processing: May irritate eyes.	
Respiratory or skin sensitization	Product as shipped: Not classified. Based on available data, the classification criteria are not met.	
	Additional health effects from elevated temperature processing (e.g., welding): Dust and fume from processing: May cause sensitization of susceptible persons by skin contact.	
Respiratory sensitization	Product as shipped: Not classified.	
	Additional health effects from elevated temperature processing (e.g., welding): Dust and fume from processing: May cause sensitization by inhalation.	
Skin sensitization	Not classified.	
Germ cell mutagenicity	Contains no ingredient listed as a mutagen.	
Neurological effects	Product as shipped: Not classified. Based on available data, the classification criteria are not met.	
Pre-existing conditions aggravated by exposure	Dust and fume from processing: Asthma, chronic lung disease, and skin rashes.	
Carcinogenicity	Contains no ingredient listed as a carcinogen	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.	
Chromium (III) compounds (CAS S~CR3~I)	3 Not classifiable as to carcinogenicity to humans.	
US OSHA Hazard Categories (10)		
Not regulated.		
US OSHA Hazard Categories (9)		
Not regulated.		
US. National Toxicology Program (NTP) Report on Carcinogens		
Not listed.		
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not regulated.		
Reproductive toxicity	Dust from processing: Not classified. Based on available data, the classification criteria are not met.	
Routes of exposure	Inhalation. Skin contact.	
Specific target organ toxicity - single exposure	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. Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Product as shipped: Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Health effects from elevated temperature processing (e.g., welding, melting): Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.	

12. Ecological information

Ecotoxicity This material is not expected to be harmful to aquatic life.

Product	Species		Test Results
RIGID CONTAINER SHEET			
Aquatic			
Crustacea	EC50	Daphnia	6.6192 mg/l, 48 hours estimated
Fish	LC50	Fish	2.4548 mg/l, 96 hours estimated
Components	Species		Test Results

Chromium (CAS 7440-47-3)

Aquatic

Crustacea	EC50	Water flea (Daphnia magna)	0.01 - 0.7 mg/l, 48 hours
Fish	LC50	Carp (Cyprinus carpio)	14.3 mg/l, 96 hours

Manganese (CAS 7439-96-5)

Aquatic

Crustacea	EC50	Water flea (Daphnia magna)	40 mg/l, 48 hours
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Persistence and degradability	No information available for product.
Bioaccumulative potential	The product is not bioaccumulating.
Mobility in soil	Not considered mobile.
Mobility in general	Not considered mobile.
Other adverse effects	None known.

13. Disposal considerations

Disposal instructions	Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Waste codes	RCRA Status: Not federally regulated in the U.S. if disposed of "as is." RCRA waste codes other than described here may apply depending on use of the product. Status must be determined at the point of waste generation. Refer to 40 CFR 261 or state equivalent in the U.S. TCLP testing is recommended for Chromium in a waste disposal scenario.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	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. All electrical equipment must be suitable for use in hazardous atmospheres involving aluminum powder in accordance with 29 CFR 1910.307. The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installation which will meet this requirement.
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TSCA Section 12(b) Export Notification (40 CFR 707, Subpart D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Chromium (CAS 7440-47-3)	Listed.
Chromium (II) compounds (CAS S~CR2~C)	Listed.

Chromium (III) compounds (CAS S~CR3~I) Listed.
 Manganese (CAS 7439-96-5) Listed.
 Manganese compounds, inorganic (CAS S~MN~C) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US OSHA Hazard Categories (9)

Not regulated.

US OSHA Hazard Categories (10)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Aluminum	7429-90-5	> 92.5
Manganese	7439-96-5	≤ 1.5

US state regulations

US. California Proposition 65

For Coatings: This product can cause exposure to one or more of the chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. However, the resulting exposure is below the relevant no significant risk level(s) and/or maximum allowable dose level(s).

For Epoxy Coatings: This product can cause exposure to one or more of the chemicals known to the State of California to cause birth defects or other reproductive harm (Bisphenol A).

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 Origination date: April 1, 2021.

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

Other information

- Aluminum Association's Bulletin F-1, "Guidelines for Handling Aluminum Fines Generated During Various Aluminum Fabricating Operations." The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
- Aluminum Association, "Guidelines for Handling Molten Aluminum, The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
- 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

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.

Response

Not applicable.

Storage

Not applicable.

Disposal

Not applicable.

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.
- Chips, dust or fines are in contact with water.
- Dust, fines or particulate are in contact with certain metal oxides (e.g., rust, copper oxide).
- Molten metal is in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide).

FIRE FIGHTING MEASURES:

Use Class D extinguishing agents on fines, dust or molten metal.

Use coarse water spray on chips and turnings.

DO NOT USE water in fighting fires around molten metal.

DO NOT USE halogenated extinguishing agents on small chips, dust, fines or particulate.

These fire extinguishing agents will react with the burning material.

IN CASE OF SPILL:

Collect scrap for recycling.

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.

Dust and fume from processing: Can cause irritation of the upper respiratory tract.

Combustion of the coatings can generate toxic and irritating gases.

Chemtrec: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken)

Kaiser Aluminum Warrick, 4000 State Route 66, Newburgh IN 47629 United States +1-877-335-9886 (24 Hour Emergency Telephone, English only)

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