

# MSDS Material Safety Data Sheet

## Aluminium Composite Material

### Section 1 - Chemical Product and Company Identification

**Chemical Formula:** Mixture

**Product Use:** Signs, Architectural, specialty applications.

### Section 2 - Composition / Information on Ingredients

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

CAS #	Component	Percent
	Aluminum Face Sheets	-
7429-90-5	Aluminum	>92
7439-95-4	Magnesium	<5
7439-96-5	Manganese	<1.5
	<b>Polymeric Core</b>	-
Proprietary	Thermoplastic Polymer	<60
Proprietary	Fire Retardant	<25
Proprietary	Aramid polymer	<7
	Coatings	-
Not Available	Chromium compounds	5-10
Not Available	Nickel compounds	5-10
Not Available	Antimony compounds	2-10
7631-86-9	Silicon dioxide, amorphous	1-5
1333-86-4	Carbon black	1-5
Not Available	Cobalt compounds	1-5
Not Available	Copper compounds	1-5
13463-67-7	Titanium dioxide	<2
Not Available	Lead compounds including lead chromate	0-1

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Solid, panels. Various colors. Odorless. 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 or 10 for additional information):

\* Dust or fines are dispersed in the air.

\* Chips, dust or fines are in contact with water.

\* Dust or fines are in contact with certain metal oxides (e.g. rust).

\* Molten metal is in contact with water/moisture or certain metal oxides (e.g. rust).

Dust and fume from processing can cause irritation of eyes, skin and upper respiratory tract.

Contact with molten polymer can cause thermal burns. Combustion of the coatings can generate toxic and irritating gases.

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### POTENTIAL HEALTH EFFECTS

The following health effects are not likely to occur unless sawing or cutting generates dust or unless polymer is heated to melting.

#### Eyes

Can cause irritation.

#### Skin

Can cause irritation. Contact with molten polymer can cause thermal burns.

#### Inhalation

Can cause irritation of upper respiratory tract and other health effects listed below. Cancer and reproductive hazard.

#### Health Effects of Ingredients

**Aluminum dust, fines and fumes** Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).

**Manganese dust or fumes** Chronic overexposures: Can cause inflammation of the lung tissue, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

**Titanium dioxide** Can cause irritation of eyes and respiratory tract. Chronic overexposures: Can cause chronic bronchitis.

Considering the physical and chemical properties of aramid aluminum laminates and the fact that kevlar aramid fiber products in normal use represent minimal risk to human health, health hazards from fiber exposures secondary to handling aramid laminates is not expected to pose a significant risk to users.

**Cobalt compounds** Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause allergic reactions. Acute and chronic overexposures: Can cause respiratory sensitization, asthma, kidney damage and damage to the heart muscle (cardiomyopathy).

**Antimony compounds** Can cause irritation of eyes, skin and mucous membranes. Chronic overexposures: Can cause dermatitis, perforation of the nasal septum, weight loss, hair loss, chemical pneumonia, liver damage and kidney damage. Ingestion: Can cause abdominal cramps, diarrhea, dizziness, abnormal heart rhythm (arrhythmia) and death.

**Copper compounds** Can cause irritation of eyes, mucous membranes, skin and respiratory tract. Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration.

**Nickel compounds** Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization and asthma. Associated with lung cancer, cancer of the vocal cords and nasal cancer. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)\*.

**Chromium (III) compounds** Can cause irritation of eyes, skin and respiratory tract. IARC/NTP: Not classifiable as to their carcinogenicity to humans by IARC.

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**Hexavalent chromium** (Chrome VI) Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause irritant dermatitis, allergic reactions and skin ulcers. Chronic overexposures: Can cause perforation of the nasal septum, respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), lung damage, kidney damage, lung cancer, nasal cancer and cancer of the gastrointestinal tract. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)

**Lead dust or fume** Can cause irritation of eyes and upper respiratory tract. Acute overexposures: Can cause nausea and muscle cramps. Chronic overexposures: Can cause weakness in the extremities (peripheral neuropathy), abdominal cramps and other gastrointestinal tract effects, kidney damage, liver damage, central nervous system damage, damage to blood forming organs, blood cell damage and reproductive harm. Can cause reduced fertility and fetal toxicity in pregnant women. IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B)\*. Certain inorganic lead compounds: IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as probably carcinogenic to humans by IARC (Group 2A)\*.

**Carbon black** Can cause mechanical irritation of eyes, skin and upper respiratory tract. Chronic overexposures: Can cause chronic bronchitis and lung disease. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)\*. Additional information: Studies with experimental animals (rats) by inhalation have found lung tumors and skin tumors.

**Silica, amorphous Acute overexposures:** Can cause dryness of eyes, nose and upper respiratory tract.

### \*IARC Classification Definitions

Group 1: The agent is carcinogenic to humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer. Group 2A: The agent is probably carcinogenic to humans. Generally includes agents for which there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals. Group 2B: The agent is possibly carcinogenic to Humans. Generally includes agents for which there is limited evidence in humans and less than sufficient evidence in experimental animals.

### Medical Conditions Aggravated By Exposure to the Product and/or Components

Dust from processing: Asthma, chronic lung disease, skin rashes and secondary Parkinson's disease.

### Section 4 - First Aid Measures

**First Aid: Eyes:** Dust from processing: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

**First Aid: Skin:** Dust from processing: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.

**Molten polymer:** If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel material from skin. Get medical treatment for thermal burns.

**First Aid: Inhalation:** Dust from processing: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration.

### Section 5 - Fire Fighting Measures

#### Flammable/Combustible Properties

This product does not present fire or explosion hazards as shipped. Small chips, turnings, dust and fines from processing may be readily ignitable.

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### Fire/Explosion

May be a potential hazard under the following conditions:

- \* Dust or fines dispersed in the air can be explosive. Even a minor dust cloud can explode violently.
- \* Chips, dust or fines in contact with water can generate flammable/explosive hydrogen gas. Hydrogen gas could present an explosion hazard in confined or poorly ventilated spaces.
- \* Dust or fines in contact with certain metal oxides (e.g., rust). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.
- \* Molten metal in contact with water/moisture or other metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with other 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.

### Extinguishing Media

Use Class D extinguishing agents on dusts, fines or molten metal. Use coarse water spray on chips and turnings.

### Unsuitable Extinguishing Media

DO NOT USE:

- \* Halogenated agents on small chips, dusts or fines.
- \* Water around molten metal.

These agents will react with the burning material.

### Fire Fighting Equipment/Instructions

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

## **Section 6 - Accidental Release Measures**

### **Small/Large Spill**

Collect scrap for recycling. If molten: Contain the flow using dry sand or salt flux as a dam. Do not use shovels or hand tools to halt the flow of molten aluminum. Allow the spill to cool before remelting as scrap.

## **Section 7 - Handling and Storage**

### **Handling/Storage**

Avoid generating dust. Avoid contact with sharp edges or heated material. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red.

**Requirements for Processes Which Generate Dusts or Fumes** If processing of these products includes operations where dust or 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. Cover and reseal partially empty containers. Use non-sparking handling equipment. Provide grounding and bonding where necessary to prevent accumulation of static charges during dust handling and transfer operations. (See Section 15). Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used. 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. Do not allow chips, fines or dust to contact water, particularly in enclosed areas.

Avoid all ignition sources. Good housekeeping practices must be maintained.

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### Requirements for Remelting of Scrap Material and/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 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 and containers which come in contact with molten metal must be preheated or specially coated and rust free. Molds and ladles must be preheated or oiled prior to casting. 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 or heavy 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 internal metal temperature of the coldest item of the batch to 400°F and then hold at that temperature for 6 hours.

### Section 8 - Exposure Controls / Personal Protection

#### Engineering Controls

If dust is generated through processing: Use with adequate explosion-proof ventilation to meet the limits listed in Section 8, Exposure Guidelines.

#### Personal Protective Equipment

##### Respiratory Protection

If dust is generated through 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, Exposure Guidelines. Suggested respiratory protection: N100.

**Eye Protection:** Wear safety glasses/goggles to avoid eye injury.

**Skin Protection:** Wear appropriate gloves to avoid any skin injury.

#### General

Sampling to establish lead exposures is advised where exposures to airborne particulate or fumes are possible. Consult OSHA Lead Standard 29 CFR 1910.1025 for specific health/industrial hygiene precautions and requirements to follow when handling lead compounds.

Personnel who handle and work with molten polymer 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).

#### Exposure Guidelines

##### A: General Product Information

We recommend an Occupational Exposure Limit for Chromium (VI) Compounds [both soluble and insoluble forms] of 0.25 ug/m<sup>3</sup> TWA as chromium.

We recommend Occupational Exposure Limits for Manganese of 0.05 mg/m<sup>3</sup> TWA (total particulate) and 0.02 mg/m<sup>3</sup> TWA (respirable fraction).

We recommend an Occupational Exposure Limit for Nickel Compounds of 0.1 mg/m<sup>3</sup> TWA.

We recommend an Occupational Exposure Limit for Cobalt of 0.02 mg/m<sup>3</sup> TWA.

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### B: Component Exposure Limits

#### Aluminum (7429-90-5)

ACGIH 10 mg/m<sup>3</sup> TWA (metal dust)

OSHA 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction)

#### Manganese (7439-96-5)

ACGIH 0.2 mg/m<sup>3</sup> TWA

OSHA 5 mg/m<sup>3</sup> Ceiling (fume)

#### Chromium compounds (Not Available)

ACGIH 0.5 mg/m<sup>3</sup> TWA (as Cr) (related to Chromium (III) compounds)

0.01 mg/m<sup>3</sup> TWA (as Cr)

0.05 mg/m<sup>3</sup> TWA (as Cr)

OSHA 0.1 mg/m<sup>3</sup> Ceiling

OSHA 0.5 mg/m<sup>3</sup> TWA (as Cr) (related to Chromium (III) Compounds)

#### Nickel compounds (Not Available)

ACGIH 0.2 mg/m<sup>3</sup> TWA (inhalable fraction, as Ni) (related to Nickel insoluble inorganic compounds (NOS))

OSHA 1 mg/m<sup>3</sup> TWA (as Ni) (related to Nickel insoluble compounds)

#### Carbon black (1333-86-4)

ACGIH 3.5 mg/m<sup>3</sup> TWA

OSHA 3.5 mg/m<sup>3</sup> TWA

#### Titanium dioxide (13463-67-7)

ACGIH 10 mg/m<sup>3</sup> TWA

OSHA 15 mg/m<sup>3</sup> TWA (total dust)

#### Lead compounds including lead chromate (Not Available)

ACGIH 0.05 mg/m<sup>3</sup> TWA (related to Lead)

OSHA 50 µg/m<sup>3</sup> PEL (as Pb); 30 µg/m<sup>3</sup> Action Level (as Pb. Poison - see 29 CFR 1910.1025) (related to Lead)

#### Antimony compounds (Not Available)

ACGIH 0.5 mg/m<sup>3</sup> TWA (related to Antimony)

OSHA 0.5 mg/m<sup>3</sup> TWA (related to Antimony)

### Section 9 - Physical & Chemical Properties

<b>Physical State:</b>	Solid panels	<b>Appearance:</b>	Various colors
<b>Boiling Point:</b>	Not applicable	<b>Melting Point:</b>	Aluminum: 900-1200°F (482-649°C); Polymer ~220°F (~104°C)
<b>Vapor Pressure:</b>	Not applicable	<b>Vapor Density:</b>	Not applicable
<b>Solubility in Water:</b>	None	<b>Specific Gravity:</b>	See Density
<b>Density:</b>	Range: generally 1.10-2.27 g/cm <sup>3</sup> (0.040-0.075 lb/in <sup>3</sup> )	<b>pH Level:</b>	Not applicable
<b>Odor:</b>	Odorless Odor	<b>Threshold:</b>	Not applicable

### Section 10 - Chemical Stability & Reactivity Information

#### Stability

Stable under normal conditions of use, storage, and transportation as shipped



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### Conditions to Avoid

Chips, fines, dust and molten metal are considerably more reactive with the following:

- \* Water: Slowly generates flammable/explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Molten metal can react violently/explosively with water or moisture, particularly when the water is entrapped.
- \* Heat: Oxidizes at a rate dependent upon temperature and particle size.
- \* Strong oxidizers: Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) particularly 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 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: An explosive reaction forming hydrogen gas occurs when heated above 1470°F (800°C).

### Hazardous Decomposition

Combustion of the coatings can generate carbon monoxide, carbon dioxide, aldehydes, metal oxides (of lead, copper, cobalt and antimony) and oxides of nitrogen.

### Section 11 - Toxicological Information

#### Health Effects of Ingredients

##### A: General Product Information

No information available for product.

##### B: Component Analysis - LD50/LC50

Magnesium (7439-95-4)

Oral LD50 Rat: 230 mg/kg

Manganese (7439-96-5)

Oral LD50 Rat: 9 g/kg

Thermoplastic Polymer (Proprietary)

Inhalation LC50 Mouse: 12 g/m<sup>3</sup>/30M

Fire Retardant (Proprietary)

Oral LD50 Rat: >5000 mg/kg

Silicon dioxide, amorphous (7631-86-9)

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Carbon black (1333-86-4)

Oral LD50 Rat: >15400 mg/kg; Dermal LD50 Rabbit: >3 g/kg

Cobalt compounds (Not Available)

Oral LD50 Rat: >3000 mg/kg

Titanium dioxide (13463-67-7)

Oral LD50 Rat: >10000 mg/kg

Lead compounds including lead chromate (Not Available)

Oral LD50 Rat: >5000 mg/kg

Antimony compounds (Not Available)

Oral LD50 Rat: >10000 mg/kg

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### Carcinogenicity

#### A: General Product Information

No information available for product.

#### B: Component Carcinogenicity

##### Thermoplastic Polymer (Proprietary)

IARC Supplement 7, 1987; Monograph 19, 1979

Aramid polymer (Proprietary)

IARC Monograph 68, 1997 (listed under para-Aramid fibrils)

Chromium compounds (Not Available)

ACGIH A4 - Not Classifiable as a Human Carcinogen (related to Chromium (III) compounds)

A1 - Confirmed Human Carcinogen

A1 - Confirmed Human Carcinogen

IARC Monograph 49, 1990; Supplement 7, 1987; Monograph 23, 1980; Monograph 2, 1973

Monograph 49, 1990 (listed under Chromium and Chromium compounds); Supplement 7, 1987 (related to Chromium (III) Compounds)

##### Nickel compounds (Not Available)

ACGIH A1 - Confirmed Human Carcinogen (related to Nickel, inorganic compounds, insoluble (NOS))

##### Silicon dioxide, amorphous (7631-86-9)

IARC Monograph 68, 1997; Supplement 7, 1987

##### Carbon black (1333-86-4)

ACGIH A4 - Not Classifiable as a Human Carcinogen

IARC Monograph 65, 1996

##### Titanium dioxide (13463-67-7)

ACGIH A4 - Not Classifiable as a Human Carcinogen

IARC Monograph 47, 1989

##### Lead compounds including lead chromate (Not Available)

ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans (related to Lead)

IARC Supplement 7, 1987; Monograph 23, 1980 (evaluated as a group) (related to Lead)

NTP Reasonably Anticipated To Be A Carcinogen (related to Lead)

### Section 12 - Ecological Information

#### Ecotoxicity

##### A: General Product Information

No information available for product.

##### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

##### Silicon dioxide, amorphous (7631-86-9)

96 Hr LC50 Brachydanio rerio: 5000 mg/L [static]

72 Hr EC50 Selenastrum capricornutum: 440 mg/L

48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L

##### Carbon black (1333-86-4)

24 Hr EC50 Daphnia magna: >5600 mg/L

##### Cobalt compounds (Not Available)

96 Hr LC50 Lepomis macrochirus: 752.4 mg/L [static]

30 min EC50 Pseudomonas putida: >10000 mg/L

24 Hr EC50 Daphnia magna Straus: >500 mg/L

##### Lead compounds including lead chromate (Not Available)

96 Hr LC50 Leuciscus idus: >10000 mg/L [static]

30 min EC50 Pseudomonas putida: >10000 mg/L

48 Hr EC50 water flea: 600 µg/L (related to Lead)



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### Antimony compounds (Not Available)

96 Hr LC50 Leuciscus idus: >10000 mg/L [static]

### Environmental Fate

No information available for product.

### Section 13 - Disposal Considerations

#### Disposal Instructions

Reuse or recycle material whenever possible. For disposal, characterize material in accordance with guidance under "US EPA Waste Number & Descriptions" and dispose of at an industrial landfill or other facility permitted to manage such material.

#### US EPA Waste Number & Descriptions

##### A: General Product Information

RCRA Status: Must be determined at time material is disposed. If material is disposed as waste, it must be characterized under RCRA according to 40 CFR, Part 261, or state equivalent in the U.S.

##### B: Component Waste Numbers

RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

### Section 14 - Transportation Information

#### Special Transportation

	PSN #1	PSN #2	PSN #3	PSN #4
Proper Shipping Name:	Not regulated			
Hazard Class:	-			
UN NA Number:	-			
Packing Group:	-			
RQ:	-			
Other - Tech Name:	-			
Other - Marine Pollutant:	-			

### Section 15 - Regulatory Information

Checked box(es) indicate that the chemical is subject to the associated regulatory requirements and/or appears on the associated chemical inventory list

#### Chemical Component: Aluminum

40 CFR 261.33	CAA 40 CFR 112
40 CFR 261 classified	SARA 40 CFR 311 and 312
RCRA Section 3001	SARA 40 CFR 372.65
CERCLA RQ established	SARA 40 CFR 355
40 CFR 302.4	OSHA 1910 1000 Z-1 tables
wWA 40 CFR 311( b)(4)	OSHA 1910 subpart Z
CWA 40 CFR 307(a)	

CAS # Proprietary	
TSCA inventory (US)	√
AICS inventory (Australia)	√
EINECS inventory (Europe)	√
DSL inventory (Canada)	√
ECL inventory (Korea)	√
ENCS inventory (Japan)	
PICCS inventory (Phillipines)	√
CHINA inventory	

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**Chemical Component:** Aluminum

40 CFR 261.33 CAA  
40 CFR 261 classified  
RCRA Section 3001  
CERCLA RQ established  
40 CFR 302.4  
wWA 40 CFR 311( b)(4)  
CWA 40 CFR 307(a)

40 CFR 112  
SARA 40 CFR 311 and 312  
SARA 40 CFR 372.65  
SARA 40 CFR 355  
OSHA 1910 1000 Z-1 tables  
OSHA 1910 subpart Z

**CAS # Proprietary**

TSCA inventory (US)  
AICS inventory (Australia)  
EINECS inventory (Europe)  
DSL inventory (Canada)  
ECL inventory (Korea)  
ENCS inventory (Japan)  
PICCS inventory (Phillipines)  
CHINA inventory

**Chemical Component:** Polyethilen

40 CFR 261.33  
40 CFR 261 classified  
RCRA Section 3001  
CERCLA RQ established  
40 CFR 302.4  
wWA 40 CFR 311( b)(4)  
CWA 40 CFR 307(a)

CAA 40 CFR 112  
SARA 40 CFR 311 and 312  
SARA 40 CFR 372.65  
SARA 40 CFR 355  
OSHA 1910 1000 Z-1 tables  
OSHA 1910 subpart Z

**CAS # Proprietary**

TSCA inventory (US) ✓  
AICS inventory (Australia) ✓  
EINECS inventory (Europe)  
DSL inventory (Canada) ✓  
ECL inventory (Korea) ✓  
ENCS inventory (Japan) ✓  
PICCS inventory (Phillipines)  
CHINA inventory

**Section 16 - Other Information****Disclaimer:**

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. The information above is provided on the condition that parties receiving the product make their own determination as to the suitability of the product for their particular purpose and assume the risk of use of the product. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. We have no responsibility or liability for any damage or injury resulting from abnormal use or from any failure to adhere to recommended procedures. We neither grant, nor shall the party receiving the product imply any authorization to practice any patented invention without a license.

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