SUPERIOR DIE SET CORPORATION

MSDS

Documents

SUPERIOR
DIE SET CORPORATION
SERVING THE DIE & MOLD BUILDING INDUSTRIES
900 West Drexel Ave. • Oak Creek, WI 53154 • (414) 764-4900

Dear Customer,

This letter is provided to you as a part of Superior Die Set Corporation's continuing efforts to comply with the OSHA Hazard Communication Standard, CFR 29 1910.1200

Enclosed are the applicable MSDS sheets that apply to a recent purchase by your company. These MSDS sheets are to be used solely for the purpose of informational request.

If you have any questions concerning the Material Safety Data Sheet program, please contact Superior Die Set for assistance at (800) 558-6040.

Sincerely,

Joe Kucharski
MSDS Coordinator

Toll Free Telephone Number 1-800-558-6040
Toll Free Fax 1-800-657-0855
Purchasing / Accounting Fax 1-414-764-2811

Web Site: http://www.supdie.com
E-Mail: messages@supdie.com

National Tooling & Machining Association
NTMA PRECISION

LUBRIPLATE®

MATERIAL SAFETY DATA SHEET

Section 1

PRODUCT NAME OR NUMBER
LUBRIPLATE No. 130-A, No. 130-AA

FORMULA
Calcium Soap, Mineral Oil and Additives

GENERIC/CHEMICAL NAME:
Petroleum Lubricating Grease

USDA AUTHORIZATION:
H-2

Manufacturer's Name
Fiske Brothers Refining Co.

Emergency Telephone Number
1-800-255-3924 - CHEM-TEL (24 hour)

Address
1500 Oakdale Ave., Toledo, Ohio 43605 - 129 Lockwood St., Newark, NJ 07105

Telephone Number for Information
419-691-2491 - Toledo Office

Section 2 - Hazardous Ingredients/Identity Information

Hazardous Components	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Non-hazardous				

Hazardous Material Identification System (HMIS): Health - 1, Flammability - 1, Reactivity - 0

Not a Controlled Product under (WHMIS) - Canada

Special Protection: See Section 9

Section 3 - Health Hazard Data

Threshold Limit Value 5 mg/m^3 for oil mist in air. OSHA Regulation 29 CFR 1910.1000

Effects of Overexposure Prolonged or repeated skin contact may cause skin irritation. Product contacting the eyes may cause eye irritation. Human health risks vary from person to person. As a precaution, exposure to liquids, vapors, mists and fumes should be minimized. This product has a low order of acute oral toxicity, but minute amounts aspirated into the lungs during ingestion may cause mild to severe pulmonary injury.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Section 4 - Emergency and First Aid Procedures

EYE CONTACT: Flush with clear water for 15 minutes or until irritation subsides. If irritation persists, consult a physician.

SKIN CONTACT: Remove any contaminated clothing and wash with soap and warm water. If injected by high pressure under skin, regardless of the appearance or its size, contact a physician IMMEDIATELY. Delay may cause loss of affected part of the body.

INHALATION: Vapor pressure is very low and inhalation at room temperature is not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician.

INGESTION: If ingested, call a physician immediately. Do not induce vomiting.

Section 5 - Fire and Explosion Hazard Data

Flash Point (Method Used) COC - 400°F **Flammable Limits** **LEL** 0.9% **UEL** 7.0%

Extinguishing Media Foam, Dry Chemical, Carbon Dioxide or Water Spray (Fog)

Special Fire Fighting Procedures Cool exposed containers with water. Use air-supplied breathing equipment for enclosed or confined spaces.

Unusual Fire and Explosion Hazards Do not store or mix with strong oxidants. Empty containers retain residue. Do not cut, drill, grind, or weld, as they may explode.

PRODUCT NAME OR NUMBER - LUBRIPLATE No. 130-A, No. 130-AA

Section 6 - Physical/Chemical Characteristics

Boiling Point	>550°F	**Specific Gravity (H_2O = 1)**	0.94 - 0.96
Vapor Pressure (mm Hg.)	<0.01	**Melting Point**	Semi-solid
Vapor Density (AIR = 1)	>5	**Evaporation Rate (Butyl Acetate = 1)**	<0.01
Solubility in Water	Negligible		
Appearance and Odor	Smooth, off-white grease with mineral oil odor.		

Section 7 - Reactivity Data

Stability Unstable / Stable X — **Conditions to Avoid** N/A

Incompatibility (Materials to Avoid) Avoid contact with strong oxidants like liquid chlorine, concentrated oxygen.

Hazardous Decomposition or Byproducts May form SO_2. If incomplete combustion, Carbon Monoxide.

Hazardous Polymerization May Occur / Will Not Occur X — **Conditions to Avoid** N/A

Section 8 - Spill or Leak Procedures

Steps to be taken in case material is released or spilled
Scrape up grease, wash remainder with suitable petroleum solvent or add absorbent. Keep petroleum products out of sewers and water courses. Advise authorities if product has entered or may enter sewers and water courses.

Waste disposal method
Assure conformity with applicable disposal regulations. Dispose of absorbed material at an approved waste disposal facility or site.

SARA/TITLE III, Section 313 Status - Zinc Compounds - <5%

Section 9 - Special Protection Information

Respiratory Protection (Specify type) Normally not needed

Ventilation Local Exhaust / Mechanical (General) — Used to capture fumes and vapors — **Special** N/A, **Other** N/A

Protective Gloves Use oil-resistant gloves, if needed. **Eye Protection** If chance of eye contact, wear goggles.

Other Protective Equipment Use oil-resistant apron, if needed.

Section 10 - Special Precautions

Precautions to be taken in handling and storing
Keep containers closed when not in use. Do not handle or store near heat, sparks, flame, or strong oxidants.

Other Precautions
Remove oil-soaked clothing and launder before reuse. Cleanse skin thoroughly after contact.

The above information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Fiske Brothers Refining Company. The data on these sheets relates only to the specific material designated herein. Fiske Brothers Refining Company assumes no legal responsibility for use or reliance upon this data.

Date Prepared: January, 2003

Prepared by: James R. Kontak

PLATE - CARBON
ISG Plate, LLC

Contains: Aluminum (CAS 7429-90-5), Carbon (CAS 7440-44-0), Chromium (CAS 7440-47-3), Copper (CAS 7440-50-8), Iron (CAS 7439-89-6), Manganese (CAS 7439-96-5), Nickel (CAS 7440-02-0) and Silicon (CAS 7440-21-3)

CAUTION

Hazards: Inhalation of metal dust and fume may result from further processing of the material by the user, particularly during welding, burning, cutting, grinding and machining activities. Long-term excessive exposure to the fume or dust may cause respiratory system effects. Studies have associated nickel and certain nickel compounds to an increased risk of cancer of the respiratory system.

Recommended Handling Procedures:

- Avoid creating excessive dust or fume levels. Mechanical ventilation or personal protective equipment (i.e., eye protection, protective clothing and NIOSH-approved respiratory protection) may be necessary during welding, burning, grinding and other dust/fume generating activities.

- The presence of nonmetallic coatings (for example, oils, paints, epoxies, laminates, etc.) on these products should be considered when evaluating potential employee health hazards. Removal of surface coatings should be considered prior to welding or other dust/fume generating activities. Avoid prolonged skin contact with nonmetallic coating oils.

FIRST AID AND MEDICAL EMERGENCY PROCEDURES

Eye Contact: Treat for foreign body in the eye. Seek medical attention.

Skin Contact: Not anticipated to pose a significant skin hazard. However, should dermatitis develop, wash affected area with mild soap and warm water. Seek medical attention if conditions persist.

Inhalation: Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.

Ingestion: Not considered an ingestion hazard.

September 2004

For more detailed health and safety information, read the Material Safety Data Sheet (MSDS) for this product.

ISG Plate, LLC 139 Modena Rd. Coatesville, Pa. 19320
Emergency Phone Numbers: ISG Plate Power Dispatcher (610) 383-2894

PLATE - HSLA

ISG Plate, LLC

Contains: Aluminum (CAS 7429-90-5), Carbon (CAS 7440-44-0), Chromium (CAS 7440-47-3), Copper (CAS 7440-50-8), Iron (CAS 7439-89-6), Manganese (CAS 7439-96-5), Nickel (CAS 7440-02-0) and Silicon (CAS 7440-21-3)

CAUTION

Hazards: Inhalation of metal dust and fume may result from further processing of the material by the user, particularly during welding, burning, cutting, grinding and machining activities. Long-term excessive exposure to the fume or dust may cause respiratory system effects. Studies have associated nickel and certain nickel compounds to an increased risk of cancer of the respiratory system.

Recommended Handling Procedures:

- Avoid creating excessive dust or fume levels. Mechanical ventilation or personal protective equipment (i.e., eye protection, protective clothing and NIOSH-approved respiratory protection) may be necessary during welding, burning, grinding and other dust/fume generating activities.

- The presence of nonmetallic coatings (for example, oils, paints, epoxies, laminates, etc.) on these products should be considered when evaluating potential employee health hazards. Removal of surface coatings should be considered prior to welding or other dust/fume generating activities. Avoid prolonged skin contact with nonmetallic coating oils.

FIRST AID AND MEDICAL EMERGENCY PROCEDURES

Eye Contact: Treat for foreign body in the eye. Seek medical attention.

Skin Contact: Not anticipated to pose a significant skin hazard. However, should dermatitis develop, wash affected area with mild soap and warm water. Seek medical attention if conditions persist.

Inhalation: Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.

Ingestion: Not considered an ingestion hazard.

ISG Plate, LLC 139 Modena Rd. Coatesville, Pa. 19320
Emergency Phone Numbers: ISG Plate Power Dispatcher (610) 383-2894

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION INFORMATION

Product Name: Plate - Carbon
Plate - HSLA

Synonym(s): Carbon Plate Steel
HSLA Plate Steel

ISG Plate, LLC.
139 Modena Rd. Coatesville, PA. 19320
For Additional Information, Contact: (610)-383-2648
Emergency Phone Numbers:
ISG Plate Power Dispatcher (610) 383-2894

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS No.	Wt.%	OSHA PEL (mg/M^3)	ACGIH TLV (mg/M^3)
Iron (FE)	7439-89-6	97 – 100	10 – Iron Oxide Fume	5 - Iron Oxide Fume as Fe
Aluminum (Al)	7429-90-5	<0.15	10 – Total Dust 5 – Respirable Fraction	10 – Metal Dust as Al 5 – Fume as Al
Carbon (C)	7440-44-0	0 - 0.75	Not Established	Not Established
Chromium (Cr)*	7440-47-3	0 - 0.8	1-Chromium Metal as Cr 0.5 – Chromium (II, III) Compounds as Cr 0.1 – Chromates as CrO_3	0.5 - Chromium Metal 0.5 - Chromium (II, III) Compounds as Cr 0.05 – Chromium (VI) Compounds as Cr
Copper (Cu)	7440-50-8	0 – 0.5	0.1 – Fume as Cu 1 – Dusts and Mists as Cu	0.2 – Fume 1 – Dusts and Mists as Cu
@Manganese (Mn)	7439-96-5	0 - 2	5 – Ceiling as Mn	0.2 – Elemental as Mn 0.2 – Inorganic compounds as Mn
@ Nickel (Ni)	7440-02-0	0 - 0.5	1 – Metal as Ni 1 – Insoluble Compounds as Ni 1 – Soluble Compounds as Ni	1 – Metal 1 - Insoluble Compounds as Ni 0.1 - Soluble Compounds as Ni
Silicon (Si)	7440-21-3	< 0.65	15 – Total Dust 5 – Respirable Fraction	10

Material may contain trace or residual elements. The following are typical percentages for the elements identified: boron 0.003%, cobalt 0.015%, molybdenum 0.12%, niobium (columbium) 0.06%, phosphorous 0.035%, sulfur <0.33% (typically 0.035%), tin 0.030%, titanium 0.050%, and vanadium 0.11%.

*The chromium contained in this product is in the elemental form.

@ SARA Reportable - See Section 15, Regulatory Information.

3. HAZARDS IDENTIFICATION

Potential Health Effects: Carbon and HSLA plate products in their usual physical form do not pose a health hazard. Inhalation of metal dust and fume may result from further processing of the material by user, particularly during welding, burning, grinding, and machining activities, and should be evaluated by an industrial hygienist. The presence of nonmetallic coatings (for example, oils, paints, epoxies, laminates, etc.) on steel products should be considered when evaluating potential employee health hazards during handling, welding, grinding, sanding or other fume/dust generating activities. Presented below are the potential health effects that have been identified for the ingredients listed that are of industrial hygiene significance.

Chromium: Chromium metal and its divalent and trivalent compounds are of low toxicity. Adverse reactions on the skin may include dermatitis for a Cr-sensitive individual. Long-term excessive inhalation exposure to ferro-chromium alloys may cause lung changes in workers exposed to these alloys. Exposure to chromium metal does not give rise to pulmonary

fibrosis or pneumoconiosis. Chromium metal, unlike hexavalent chromium (Chromium VI), has not been linked to an increased risk of cancer.

Iron Oxide: Long-term excessive inhalation exposure to iron oxide fume or dust has been associated with a benign lung condition known as siderosis. No physical impairment of lung function has been linked to siderosis.

Manganese: Manganese dust and fume can act as minor irritants to the eyes and respiratory tract. Excessive inhalation exposures may adversely affect the central nervous system (CNS). Early symptoms may include weakness in lower extremities, sleepiness, salivation, nervousness, and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expression, and uncontrollable laughter may occur. Excessive inhalation exposure to manganese fume may result in a flu-like illness termed metal fume fever. Excessive exposure to manganese has been linked to increased incidence of pneumonia, bronchitis and inflammation of the lungs.

Nickel: Nickel fume and dust are respiratory irritants and excessive exposure may cause severe inflammation of the lungs. Prolonged and repeated skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch." Nickel and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids. Studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the respiratory system.

Usual Route(s) of Entry: Inhalation

Medical Conditions Possibly Aggravated: Individuals with chronic diseases or disorders of the respiratory system should consult a physician regarding workplace exposure to ingredients.

	IARC	NTP	OSHA
Carcinogen References: Nickel	Yes	Yes	No

4. FIRST AID MEASURES

Eye: Treat for foreign body in the eye. Flush eyes with large amounts of water. Seek medical attention.

Skin: Not anticipated to pose a significant skin hazard. However, should dermatitis develop, wash affected area thoroughly with mild soap and water. If irritation or other symptoms develop, seek medical attention.

Inhalation: Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.

Ingestion: Not considered an ingestion hazard.

5. FIRE FIGHTING MEASURES

Steel products do not present fire or explosion hazards under normal conditions. Molten metal may react violently with water. High concentrations of metallic fines in the air may present an explosion hazard.

Fire fighters are to wear full protective equipment, including full bunker gear and SCBA respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Any excess product can be recycled for further use, disposed in an appropriately permitted waste landfill, or disposed by other methods in accordance with local, state, and federal regulations. Finely divided, dry particles should be removed by vacuuming or wet sweeping to prevent spreading dusts. Avoid using compressed air.

7. HANDLING AND STORAGE

Work Practices: Use lifting and work devices, e.g., crane, hoist, etc., within rated capacities and in accordance with manufacturer's instructions when handling these products. Operations with the potential for generating high concentrations of airborne particles should be evaluated and controlled as needed. Minimize generation of airborne dust and fume. Avoid breathing metal dust or fumes.

Nonmetallic coatings, i.e. oils, paints, epoxies, laminates, etc. may be applied (generally at the customer's request) to the surface of these products. Burning or welding on steel products with nonmetallic coatings may produce emissions that may cause eye and respiratory tract irritation or other respiratory system effects. The possible presence of these coatings should be recognized and considered when evaluating potential employee health hazards and exposures during handling and welding or other dust/fume generating activities. Prolonged contact with nonmetallic coating oils may cause skin irritation and should be avoided.

8. EXPOSURE CONTROLS /PERSONAL PROTECTION

Engineering Controls (Ventilation, etc.): Provide ventilation sufficient to maintain exposure levels below the applicable exposure limits.

When airborne emissions may occur due to further processing: (1) avoid breathing dust and fume, (2) evaluate potential employee exposure, (3) minimize generation of airborne emissions, (4) maintain surfaces free as practical of accumulated material, (5) use protective clothing as specified by an industrial hygienist or safety professional where exposure levels may be excessive, (6) do not smoke in work area, (7) wash hands before eating, drinking or smoking and after handling, (8) change contaminated clothing before leaving work premises.

Removal of surface coatings should be considered prior to welding or other fume generating activities.

Eye Protection: Use safety glasses and/or other protective eyewear as specified by a safety professional where risk of eye injury is present.

Skin Protection: Not anticipated to pose significant skin hazard. Use gloves (i.e., cotton, leather or kevlar) and/or protective clothing (i.e., Tyvek, cotton) as specified by an industrial hygienist or safety professional where exposure levels are excessive or where handling material could result in punctures or cuts to the hands or arms.

Respiratory Protection: When engineering controls are not feasible or sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH-approved respirator that protects against dust or fume as specified by an industrial hygienist or qualified safety professional in accordance with manufacturer instructions and use limitations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Appearance and Odor: Metallic gray solid; no odor
Boiling Point: Not Applicable
Melting Point: 2800°F
Specific Gravity: 7.6 to 7.8
Percent Volatile by Volume: 0
Percent Solid (%) by Weight: 100

pH: Not Applicable
Vapor Pressure: Not Applicable
Vapor Density: Not Applicable
Flashpoint: Not Applicable
Evaporation Rate: Not Applicable
Solubility in Water: Not Soluble

10. STABILITY AND REACTIVITY

Chemical Stability: Stable ***Conditions to Avoid:*** Acids ***Hazardous Polymerization:*** Will not occur
Hazardous Decomposition Products: Metal oxides of listed ingredients and carbon monoxide from nonmetallic coatings.

11. TOXICOLOGICAL INFORMATION

Carbon Plate and HSLA Plate have not been evaluated as a whole. Toxicity data for components:

Aluminum (Al)	LD50: No Information
Elemental Carbon (C)	LD50: No Information
Chrome (Cr) Elemental	TDLo: Cr III - 90 mg/kg- Rat/Intraperitoneal-
Copper (Cu)	TDLo: 120 mg/kg - human/oral
Iron (Fe)	LD50: 30 g/kg - rat/oral

Manganese (Mn)	LD50: 9 g/kg rat/oral
Nickel (Ni)	LDLo: 5 g/kg – Oral/Rat, LDLo: 5 mg/kg – Oral,+ TCLo: 15 mg/m3/91W-Inhalation/adult Guinea Pig
Silicon (Si)	LD50: No Information

12. ECOLOGICAL INFORMATION

Steel products in their usual form do not pose an ecological hazard.

13. DISPOSAL CONSIDERATION

Any excess product can be recycled for further use, disposed in an appropriately permitted waste landfill, or disposed by other methods in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

Not a hazardous material for DOT shipping.

15. REGULATORY INFORMATION

The following list of regulatory requirements relating to an ISG Plate, LLC product may not be complete and should not be solely relied on for all regulatory compliance responsibilities.

SARA Title III Hazard Categories: This material is considered, under applicable definitions, to meet the following categories.

( ) Immediate (acute) Health
( ) Reactive
(x) Delayed (chronic) Health
( ) Fire
( ) Sudden Release of Pressure

SARA 313 Information: This product contains chemicals subject to the reporting requirements of Section 313 of TITLE III of the Superfund Amendments & Reauthorization Act (SARA) of 1986 and 40 CFR, Part 372 (see Section 2; the @ symbol denotes chemicals subject to these reporting requirements). Please also note that if you repackage or otherwise redistribute this product to industrial customers, SARA 313 requires that a notice be sent to those customers.

16. OTHER INFORMATION

The following label hazard ratings are recommended:

NFPA		HMIS	
Fire	0	Health	0
Health	0	Flammability	0
Reactivity	0	Reactivity	0
Specific Hazard	None		

DISCLAIMER: Our objective in sending this information is to help you protect the health and safety of your personnel and to comply with the OSHA Hazard Communication Standard and Title III of the Superfund Amendment and Reauthorization Act of 1986. This information is taken from sources or is based upon data believed to be reliable. ISG Plate LLC makes no warranty as to the absolute correctness, completeness, or sufficiency of any of the foregoing, or that any additional or other measures may not be required under particular conditions. ISG PLATE, LLC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR TRADE.

ALLOY PLATE
ISG Plate, LLC

Contains: Aluminum (CAS 7429-90-5), Carbon (CAS 7440-44-0), Chromium (CAS 7440-47-3), Copper (CAS 7440-50-8), Iron (CAS 7439-89-6), Manganese (CAS 7439-96-5), Molybdenum (CAS 7439-98-7), Nickel (CAS 7440-02-0) and Silicon (CAS 7440-21-3)

CAUTION

Hazards: Inhalation of metal dust and fume may result from further processing of the material by the user, particularly during welding, burning, cutting, grinding and machining activities. Long-term excessive exposure to the fume or dust may cause respiratory system effects. Studies have associated nickel and certain nickel compounds to an increased risk of cancer of the respiratory system.

Recommended Handling Procedures:

- Avoid creating excessive dust or fume levels. Mechanical ventilation or personal protective equipment (i.e., eye protection, protective clothing and NIOSH-approved respiratory protection) may be necessary during welding, burning, grinding and other dust/fume generating activities.

- The presence of nonmetallic coatings (for example, oils, paints, epoxies, laminates, etc.) on these products should be considered when evaluating potential employee health hazards. Removal of surface coatings should be considered prior to welding or other dust/fume generating activities. Avoid prolonged skin contact with nonmetallic coating oils.

FIRST AID AND MEDICAL EMERGENCY PROCEDURES

Eye Contact: Treat for foreign body in the eye. Seek medical attention.

Skin Contact: Not anticipated to pose a significant skin hazard. However, should dermatitis develop, wash affected area with mild soap and warm water. Seek medical attention if conditions persist.

Inhalation: Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.

Ingestion: Not considered an ingestion hazard.

September, 2004

For more detailed health and safety information, read the Material Safety Data Sheet (MSDS) for this product.

ISG Plate, LLC 139 Modena Rd. Coatesville, PA. 19320
Emergency Phone Numbers: ISG Plate Power Dispatcher (610) 383-2894

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION INFORMATION

Product Name: **Plate - Alloy**

Synonym(s): **Alloy Plate Steel**

ISG Plate, LLC
139 Modena Rd. Coatesville, PA. 19320
For Additional Information, Contact: (610) 383-2648
Emergency Phone Numbers:
ISG Plate Power Dispatcher (610) 383-2894

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS No.	Wt.%	OSHA PEL (mg/M^3)	ACGIH TLV (mg/M^3)
Iron (Fe)	7439-89-6	88-100	10 - Iron Oxide Fume	5 - Iron Oxide Fume as Fe
Aluminum (Al)	7429-90-5	<0.15	10 – Total Dust 5 – Respirable Fraction	10 – Metal Dust as Al 5 – Fume as Al
Carbon (C)	7440-44-0	0-1.6	Not Established	Not Established
@Chromium (Cr)*	7440-47-3	0-10.0	1-Chromium Metal as Cr 0.5 - Chromium (II, III) Compounds as Cr 0.1 - Chromates as CrO_3	0.5 - Chromium Metal 0.5 - Chromium (II, III) Compounds as Cr 0.05 – Chromium (VI) Compounds as Cr
@Copper (Cu)	7440-50-8	0-1.75	0.1 – Fume as Cu 1 – Dusts and Mists as Cu	0.2 – Fume 1 – Dusts and Mists as Cu
@Manganese (Mn)	7439-96-5	0 - 2.0	5 - Ceiling as Mn	0.2 – Elemental as Mn 0.2 – Inorganic compounds as Mn
Molybdenum (Mo)	7439-98-7	0 – 1.8	15 – Total Dust 5 – Soluble Compounds	10 – Insoluble Compounds 5 – Soluble Compounds
@ Nickel (Ni)	7440-02-0	0-9.5	1 - Metal as Ni 1 - Insoluble Compounds as Ni 1 - Soluble Compounds as Ni	1 – Metal 1 - Insoluble Compounds as Ni 0.1 - Soluble Compounds as Ni
Silicon (Si)	7440-21-3	<2.25	15 - Total Dust 5 - Respirable Fraction	10

Material may contain trace or residual elements. The following are typical percentages for the elements identified: boron 0.005%, cobalt 0.06%, niobium (columbium) 0.06%, phosphorous 0.035%, sulfur <0.1% (typically 0.035%), tin 0.03%, titanium <0.33% (typically 0.05%), and vanadium <0.5% (typically 0.11%).

*The chromium contained in this product is in the elemental form.
@ SARA Reportable - See Section 15. Regulatory Information.

3. HAZARDS IDENTIFICATION

Potential Health Effects: Alloy plate products in their usual physical form do not pose a health hazard. Inhalation of metal dust and fume may result from further processing of the material by user, particularly during welding, burning, grinding, and machining activities, and should be evaluated by an industrial hygienist. The presence of nonmetallic coatings (for example, oils, paints, epoxies, laminates, etc.) on steel products should be considered when evaluating potential employee health hazards during handling, welding, grinding, sanding or other fume/dust generating activities. Presented below are the potential health effects that have been identified for the ingredients listed that are of industrial hygiene significance.

Chromium: Chromium metal and its divalent and trivalent compounds are of low toxicity. Adverse reactions on the skin may include dermatitis for a Cr-sensitive individual. Long-term excessive inhalation exposure to ferro-chromium alloys may cause lung changes in workers exposed to these alloys. Exposure to chromium metal does not give rise to pulmonary fibrosis or pneumoconiosis. Chromium metal, unlike hexavalent chromium (Chromium VI), has not been linked to an increased risk of cancer.

Iron Oxide: Long-term excessive inhalation exposure to iron oxide fume or dust has been associated with a benign lung condition known as siderosis. No physical impairment of lung function has been linked to siderosis.

Manganese: Manganese dust and fume can act as minor irritants to the eyes and respiratory tract. Excessive inhalation exposures may adversely affect the central nervous system (CNS). Early symptoms may include weakness in lower extremities, sleepiness, salivation, nervousness, and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expression, and uncontrollable laughter may occur. Excessive inhalation exposure to manganese fume may result in a flu-like illness termed metal fume fever. Excessive exposure to manganese has been linked to increased incidence of pneumonia, bronchitis and inflammation of the lungs.

Nickel: Nickel fume and dust are respiratory irritants and excessive exposure may cause severe inflammation of the lungs. Prolonged and repeated skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch." Nickel and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids. Studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the respiratory system.

Usual Route(s) of Entry: Inhalation

Medical Conditions Possibly Aggravated: Individuals with chronic diseases or disorders of the respiratory system should consult a physician regarding workplace exposure to ingredients.

	IARC	NTP	OSHA
Carcinogen References: Nickel	Yes	Yes	No

4. FIRST AID MEASURES

Eye: Treat for foreign body in the eye. Flush eyes with large amounts of water. Seek medical attention.
Skin: Not anticipated to pose a significant skin hazard. However, should dermatitis develop, wash affected area thoroughly with mild soap and water. If irritation or other symptoms develop, seek medical attention.
Inhalation: Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.
Ingestion: Not considered an ingestion hazard.

5. FIRE FIGHTING MEASURES

Steel products do not present fire or explosion hazards under normal conditions. Molten metal may react violently with water. High concentrations of metallic fines in the air may present an explosion hazard.

Fire fighters are to wear full protective equipment, including full bunker gear and SCBA respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Any excess product can be recycled for further use, disposed in an appropriately permitted waste landfill, or disposed by other methods in accordance with local, state, and federal regulations. Finely divided, dry particles should be removed by vacuuming or wet sweeping to prevent spreading dusts. Avoid using compressed air.

7. HANDLING AND STORAGE

Work Practices: Use lifting and work devices, e.g., crane, hoist, etc., within rated capacities and in accordance with manufacturer's instructions when handling these products. Operations with the potential for generating high concentrations of airborne particles should be evaluated and controlled as needed. Minimize generation of airborne dust and fume. Avoid breathing metal dust or fumes.

Nonmetallic coatings, i.e. oils, paints, epoxies, laminates, etc. may be applied (generally at the customer's request) to the surface of these products. Burning or welding on steel products with nonmetallic coatings may produce emissions that may cause eye and respiratory tract irritation or other respiratory system effects. The possible presence of these coatings should be recognized and considered when evaluating potential employee health hazards and exposures during handling and welding or other dust/fume generating activities. Prolonged contact with nonmetallic coating oils may cause skin irritation and should be avoided.

8. EXPOSURE CONTROLS /PERSONAL PROTECTION

Engineering Controls (Ventilation, etc.): Provide ventilation sufficient to maintain exposure levels below the applicable exposure limits.

When airborne emissions may occur due to further processing: (1) avoid breathing dust and fume, (2) evaluate potential employee exposure, (3) minimize generation of airborne emissions, (4) maintain surfaces free as practical of accumulated material, (5) use protective clothing as specified by an industrial hygienist or safety professional where exposure levels may be excessive, (6) do not smoke in work area, (7) wash hands before eating, drinking or smoking and after handling, (8) change contaminated clothing before leaving work premises.

Removal of surface coatings should be considered prior to welding or other fume generating activities.

Eye Protection: Use safety glasses and/or other protective eyewear as specified by a safety professional where risk of eye injury is present.

Skin Protection: Not anticipated to pose significant skin hazard. Use gloves (i.e., cotton, leather or kevlar) and/or protective clothing (i.e., Tyvek, cotton) as specified by an industrial hygienist or safety professional where exposure levels are excessive or where handling material could result in punctures or cuts to the hands or arms.

Respiratory Protection: When engineering controls are not feasible or sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH-approved respirator that protects against dust or fume as specified by an industrial hygienist or qualified safety professional in accordance with manufacturer instructions and use limitations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Appearance and Odor: Metallic gray solid; no odor
Boiling Point: Not Applicable
Melting Point: 2800°F
Specific Gravity: 7.6 to 7.8
Percent Volatile by Volume: 0
Percent Solid (%) by Weight: 100

pH: Not Applicable
Vapor Pressure: Not Applicable
Vapor Density: Not Applicable
Flashpoint: Not Applicable
Evaporation Rate: Not Applicable
Solubility in Water: Not Soluble

10. STABILITY AND REACTIVITY

Chemical Stability: Stable ***Conditions to Avoid:*** Acids ***Hazardous Polymerization:*** Will not occur
Hazardous Decomposition Products: Metal oxides of listed ingredients and carbon monoxide from nonmetallic coatings.

11. TOXICOLOGICAL INFORMATION

Alloy Plate has not been evaluated as a whole. Toxicity data for components:

Aluminum (Al)	LD50: No Information
Elemental Carbon (C)	LD50: No Information

Chrome (Cr) Elemental	TDLo: Cr III - 90 mg/kg- Rat/Intraperitoneal-
Copper (Cu)	TDLo: 120 mg/kg - human/oral
Iron (Fe)	LD50: 30 g/kg - rat/oral
Manganese (Mn)	LD50: 9 g/kg rat/oral
Molybdenum (Mo)	LD50: No Information
Nickel (Ni)	LDLo: 5 g/kg – Oral/Rat, LDLo: 5 mg/kg – Oral,+ TCLo: 15 mg/m3/91W-Inhalation/adult Guinea Pig
Silicon (Si)	LD50: No Information

12. ECOLOGICAL INFORMATION

Steel products in their usual form do not pose an ecological hazard.

13. DISPOSAL CONSIDERATION

Any excess product can be recycled for further use, disposed in an appropriately permitted waste landfill, or disposed by other methods in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

Not a hazardous material for DOT shipping.

15. REGULATORY INFORMATION

The following list of regulatory requirements relating to an ISG Plate, LLC product may not be complete and should not be solely relied on for all regulatory compliance responsibilities.

SARA Title III Hazard Categories: This material is considered, under applicable definitions, to meet the following categories.

( ) Immediate (acute) Health
( ) Reactive
(x) Delayed (chronic) Health
( ) Fire
( ) Sudden Release of Pressure

SARA 313 Information: This product contains chemicals subject to the reporting requirements of Section 313 of TITLE III of the Superfund Amendments & Reauthorization Act (SARA) of 1986 and 40 CFR, Part 372 (see Section 2; the @ symbol denotes chemicals subject to these reporting requirements). Please also note that if you repackage or otherwise redistribute this product to industrial customers, SARA 313 requires that a notice be sent to those customers.

16. OTHER INFORMATION

The following label hazard ratings are recommended:

NFPA		HMIS	
Fire	0	Health	0
Health	0	Flammability	0
Reactivity	0	Reactivity	0
Specific Hazard	None		

DISCLAIMER: Our objective in sending this information is to help you protect the health and safety of your personnel and to comply with the OSHA Hazard Communication Standard and Title III of the Superfund Amendment and Reauthorization Act of 1986. This information is taken from sources or is based upon data believed to be reliable. ISG Plate, LLC makes no warranty as to the absolute correctness, completeness, or sufficiency of any of the foregoing, or that any additional or other measures may not be required under particular conditions. ISG PLATE, LLC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY,

ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR TRADE.

PECHINEY
ROLLED PRODUCTS

Material Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: 7XXX SERIES ALLOYS and FORTAL ALUMINUM COIL, FLAT SHEET OR PLATE **Product Use:** FABRICATION OF ITEMS

This product may be anyone of the following alloys:
(FORTAL, 7010, 7021, 7039, 7050, 7072, 7075, 7178, 7475, K072, K075, K729, K750, K752, K753, K754, K755, K756, K775)

Company Name and Address:
Pechiney Rolled Products, LLC
Post Office Box 68
Ravenswood, West Virginia 26164
MSDS Prepared by: Industrial Hygiene

Emergency Telephone Numbers:

CHEMTREC:	800-424-9300
8:00 to 4:30 weekdays	304-273-6162
all other times	304-273-6241

SECTION 2 - COMPOSITION, UPPER LIMITS OF INGREDIENTS (percentages by weight)

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be	Al Min.
FORTAL	0.40	0.50	2.6	0.30	2.9	0.28	6.7	0.20	note #1	87.3
7010	0.12	0.15	2.0	0.10	2.6	0.05	6.7	0.06	note #1	88.2
7021	0.25	0.40	0.25	0.10	1.8	0.05	6.0	0.10	note #1	91.0
7039	0.30	0.40	0.10	0.40	3.3	0.25	4.5	0.10	note #1	90.6
7050	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
7072	0.1	0.6	0.10	0.10	0.10	—	1.3	0.003	—	97.6
7075	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	note #1	87.3
7178	0.40	0.50	2.4	0.30	3.1	0.28	7.3	0.20	note #1	85.5
7475	0.10	0.12	1.9	0.06	2.6	0.25	6.2	0.06	note #1	88.7
K072	0.15	0.6	0.10	0.10	0.10	—	1.3	0.05	—	97.6
K075	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	note #1	87.3
K729	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K750	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K752	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K753	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K754	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K756	0.12	0.15	2.6	0.10	2.6	0.04	6.7	0.06	note #1	87.6
K755	0.12	0.15	2.60	0.10	2.60	0.04	6.70	0.06	note #1	87.6
K775	0.10	0.12	1.9	0.06	2.6	0.25	6.2	0.06	note #1	88.7

Note #1: This alloy may contain trace quantities of beryllium (20 PPM or less). Exposures should be kept as low as reasonably achievable.

CAS Numbers: Aluminum (7429-90-5); Beryllium (7440-41-7); Chromium (7440-47-3); Copper (7440-50-8); Iron (7439-89-6); Magnesium (7439-95-4); Manganese (7439-96-5); Silicon (7440-21-3); Titanium (744-32-6); Zinc (7440-66-6).

OCCUPATIONAL EXPOSURE LIMITS: (TWA's in mg/m³)

	ACGIH TLV	OSHA PEL
Aluminum, total dust	10.0	15.0 (total); 5 (respirable)
fume	5.0	5.0
Beryllium	0.002	0.002 (TWA); 0.005 (ceiling)
	0.01 (insoluble Cr VI)	
Copper	0.20 (fume)	0.10
Chromium	0.5 (metal & Cr III)	1.0 (metal and insoluble salts)
	0.05 (water soluble Cr VI)	0.5 (Cr II & Cr III)
Iron	5.0 (oxide dust & fumes)	10.0 (total oxide particulate)
Manganese	0.2	5.0 (ceiling)
Magnesium	10.0 (oxide fume)	15.0 (total oxide particulate)
Silicon	10.0	15.0 (total); 5 (respirable)
Titanium Dioxide dust	10.0	N/A
Zinc	5.0 (fume); 10.0 (dust)	5.0 (respirable); 10.0 (total dust)

SECTION 3 - HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

This product as metal coils, sheet or as a finished article is considered to be practically non-toxic under normal conditions. It is a solid, silvery, odorless and non-flammable. Dusts clouds may be explosive. Water coming in contact with molten metal may be explosive. Dust, small chips and fines can generate flammable/explosive hydrogen gas on contact with water. Do not confine this mixture.

POTENTIAL HEALTH EFFECTS:

EYE: Dust or chips may cause abrasions.

SKIN: Dust or chips may cause abrasions. Hot metal may cause burns.

INGESTION: Not a hazard.

INHALATION: Dusts and fines present a low health risk. Overexposure to zinc and copper fumes may cause "metal fume fever" resulting in temporary flu-like symptoms. Chronic overexposure to manganese fumes could cause nervous system disorders, inflammation and/or scarring of the lungs.

SECTION 4 - FIRST AID MEASURES

EYE: Flush the eyes with clean water for 15 minutes. Seek medical attention if irritation persists.

SKIN: Wash with soap and water. For minor burns, apply cold water. For more severe burns, seek medical attention.

INGESTION: Not a hazard.

INHALATION: Remove to fresh air. Seek medical attention if symptoms develop.

SECTION 5 - FIRE FIGHTING MEASURES

This product does not present a fire or explosion hazard under normal conditions.

Flammable Properties: Small chips, fines and dust can ignite.

Fire and Explosion: Adding water to molten metal can cause an explosion. Ensure aluminum is fully dry before melting. Dust clouds can be explosive, and should be prevented with adequate ventilation.

Extinguishing Media: Fires involving molten metal, use class "D" fire extinguishers. DO NOT USE WATER. Fires involving chips, fines or dusts, use water spray. DO NOT USE HALOGENATED EXTINGUISHING AGENTS.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Scrap, Chips, Fines, Turnings: Collect for remelt, recycling or disposal. Pick up or sweep solid metal into container.
Molten Metal: Dam the molten metal with dry sand or dirt and allow to cool to room temperature, then pick up metal for remelt, recycling or disposal.

SECTION 7 - HANDLING AND STORAGE

Keep chips, fines and dust dry to prevent generating hydrogen gas. Water coming into contact with molten aluminum can be explosive. Avoid storing aluminum that is to be remelted anywhere it can get wet. Before charging remelt furnace, ensure removal of surface contamination such as water, ice, snow, grease, oil or comparable materials..

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Workers handling molten aluminum should wear primary protective clothing such as face shields, safety glasses with side shields, burn resistant clothing and similar equipment to prevent burns.

Engineering Controls: When working with molten aluminum, or welding/brazing aluminum, use adequate ventilation to meet the exposure limits listed in Section 2 of this MSDS.

Eye/Face Protection: Wear safety glasses with side shields to prevent eye contact during cutting, grinding, or milling operations. A face shield in addition to safety glasses with side shields, is recommended when working with molten metal.

Skin Protection: Wear appropriate gloves to avoid cuts and abrasions as needed.

Respiratory Protection: Use NIOSH approved respiratory protection for dust and fumes.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid, silvery-white color. Shape is large metal coils, sheets or plates.		
Odor:	Not Applicable		
Physical State:	Solid	Boiling Point:	Not Applicable
pH:	Not Applicable	Melting Point:	950 - 1220° F (510 - 660° C)
Vapor Pressure:	Not Applicable	Specific Gravity:	2.7 (water = 1)
Vapor Density:	Not Applicable	Solubility:	Soluble in strong acids and alkalis.

SECTION 10 - STABILITY AND REACTIVITY

Solid aluminum is stable under normal conditions of use, storage and transportation. Molten aluminum can react violently with water. Aluminum can have explosive reactions with molten metal oxides (e.g., copper, iron), nitrates, sulfides and sodium carbonate.

Reactivity:

Water:	May react with finely divided aluminum to generate flammable and explosive hydrogen gas and heat.
Heat:	Potentially explosive reaction when heated with metal oxides, nitrates, sulfides.
Strong Oxidizers:	Violent reaction with significant heat generation.
Acids/Alkalis:	Reacts to generate flammable/explosive hydrogen gas.
Halogenated Compounds:	May react violently with finely divided aluminum, this includes halogenated fire extinguishing agents.
Alcohols: (butanol, methanol, 2-propanol, etc.)	Can have exothermic reaction to release hydrogen gas.

SECTION 11 - TOXICOLOGICAL INFORMATION

Aluminum: Aluminum dust and fume are practically non-toxic. Overexposure to fumes or dust may cause slight irritation to the eyes, nose and throat. There is no evidence of carcinogenicity.

Beryllium: Acute overexposure to fumes or fine dusts may cause respiratory irritation. Chronic overexposure to fumes or fine dusts may cause chemical pneumonitis. The IARC has classified beryllium as human carcinogen.

Chromium: Chromium metal dust is practically non-toxic. Chromium III compound dusts may irritate the eyes, skin and nose. Chromium VI compounds are irritating and considered carcinogens by IARC, NTP and ACGIH.

Copper: Overexposure to copper fumes or fine dusts may cause Metal Fume Fever with flu-like symptoms. There is no evidence of carcinogenicity.

Iron: Iron does not have significant toxicology. There is no evidence of carcinogenicity.

Magnesium: Magnesium oxide (MgO) dust may cause slight irritation of the eye and nose. MgO fume may cause Metal Fume Fever with flu-like symptoms. There is no evidence of carcinogenicity.

Manganese: Acute overexposures to manganese oxide fume may cause Metal Fume Fever with flu-like symptoms. Chronic overexposures might cause a CNS disorder resembling Parkinsonism or susceptibility to lung infections. There is no evidence of carcinogenicity.

Silicon: Silicon is a nuisance dust and an eye irritant. There is no evidence of carcinogenicity.

Titanium: Titanium has no significant toxicology.

Zinc: High levels of zinc dust may irritate the nose and throat. Overexposure to zinc oxide fume may cause Metal Fume Fever with flu-like symptoms. There is no evidence of carcinogenicity.

Ingredient	IDLH	LD50	LC50
Aluminum	N.D.	N.D.	N.D.
Beryllium	4 mg/m^3	Rat(iv): 496 ug/kg	N.D.
Chromium	250 mg/m^3	Mouse(ip):3.5 gm/kg	N.D.
Copper	100 mg/m^3	Mouse(ip):3.5 gm/kg	N.D.
Iron	2.5 gm/m^3	Rat(or): 30 gm/kg	N.D.
Magnesium	N.D.	N.D.	N.D.
Manganese	500 mg/m^3	Rat(or): 9 gm/kg	N.D.
Silicon	N.D.	Rat(or): 3.2 gm/kg	N.D.
Titanium	N.D.	N.D.	N.D.
Zinc(oxide fume)	500 mg/m^3	N.D.	N.D.

(N.D. = not determined)

SECTION 12 - ECOLOGICAL INFORMATION

No information found concerning these aluminum alloys.

SECTION 13 - DISPOSAL CONSIDERATIONS

Collect scrap for recycling/remelting. These aluminum alloys are not federally regulated as RCRA Hazardous Waste.

SECTION 14 - TRANSPORTATION INFORMATION

The U.S. Department of Transportation does not regulate these aluminum alloys.
United Nations/North American number (UN/NA): none

SECTION 15 - REGULATORY INFORMATION

TSCA: All components of these aluminum alloys are listed on the TSCA Section 8(b) Chemical Inventory.

WHMIS: This MSDS was prepared in compliance with WHMIS requirements. Except for aluminum, chromium and copper, all materials in these alloys present on the Ingredient Disclosure List, are in concentrations less than the reporting threshold concentrations.

OSHA HAZARD COMMUNICATIONS RULE, 29 CFR 1910.1200:
The Aluminum, Beryllium, Chromium, Copper, Iron, Magnesium, Manganese, Silicon and Zinc components of these alloys are subject to the OSHA HAZCOM requirements.

CERCLA/SUPERFUND, 40 CFR 117, 302:
These alloys contain the following Reportable Quantity (RQ) substances; Beryllium, Chromium, Copper and Zinc.

SECTION 15 - REGULATORY INFORMATION (continued)

SARA 313 INFORMATION:
The following materials are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS#	CONCENTRATION
Aluminum (fume & dust only)	7429-90-5	greater than 85.5%
Beryllium	7440-41-7	20 PPM (by weight) or less
Chromium	7440-47-3	0.28% or less
Copper	7440-50-8	2.60% or less
Manganese	7439-96-5	0.40% or less
Zinc (fume & dust only)	7440-66-6	7.30% or less

Note: Aluminum fume (7429-90-5) may be formed if the product is welded, brazed, silver soldered or melted. Aluminum dust (7429-90-5) may be formed if the product is cut or ground.

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. Depending on the alloy, may contain Chromium or Beryllium. Both these metals are known to the State of California to cause cancer or reproductive toxicity.

MASSACHUSETTS SUBSTANCE LIST: The following elements are on the Massachusetts Substance List: Aluminum, Beryllium, Chromium, Copper, Magnesium, Manganese, and Zinc.

NEW JERSEY RIGHT-TO-KNOW HAZARDOUS SUBSTANCE LIST: The following elements are on the New Jersey Right-To-Know Hazardous Substance List: Aluminum, Beryllium, Chromium, Copper, Magnesium, Manganese and Titanium.

PENNSYLVANIA HAZARDOUS SUBSTANCE LIST: The following elements are on the Pennsylvania Hazardous Substance List: Aluminum, Beryllium, Chromium, Copper, Magnesium, Manganese, Silicon and Zinc.

SECTION 16 - OTHER INFORMATION

The MSDS information provided is based on data furnished to the manufacturer by its suppliers or other authoritative references. Although presently believed to be reliable, the information and products are intended for use by skilled persons at their own risk who are responsible for determining the appropriate use of our products and the effect that

various processes, modifications or manipulations may have on manufacturer's product. Users should make their own determinations as to the suitability of the products for their particular use or purpose. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS IMPLIED REGARDING BUYER'S USE, APPLICATION OR PURPOSE OF MANUFACTURER'S PRODUCTS OR REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. The manufacturer assumes no responsibility for events, health effects, injuries or other consequences resulting or damages incurred from the use, application or purpose of these products.

Abbreviations:

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS#:	Chemical Abstract Service number
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
CNS:	Central Nervous System
IARC:	International Agency for Research on Cancer, World Health Organization
IDLH:	Immediately Dangerous to Life and Health
LC50:	Lethal concentration for 50% of the test population.
LD50:	Lethal dose for 50% of the test population.
MSDS:	Material Safety Data Sheet
N/A:	Not Applicable
N.D.:	Not Determined
NTP:	National Toxicology Program, Seventh Annual Report on Carcinogens
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
PPM:	Parts Per Million
SARA 313:	Superfund Amendments and Reauthorization Act of 1986, Section 313
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act
TWA:	Time-Weighted-Average
WHMIS:	Workplace Hazardous Materials Information System (Canada)