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Material Safety Data Sheet

Aluminum



Ryerson

a subsidiary of
Inland Steel Industries, Inc.

Material Safety Data Sheet

ALUMINUM



SECTION 1 – Product Identification

Distributor: Joseph T. Ryerson & Son, Inc.

Address: 2621 W. 15th Place
Chicago, Illinois 60608

Chemical Name and Synonyms: ALUMINUM ALLOY

Chemical Family: Metals

Formula: Not Applicable

Emergency Telephone: 312-762-2121

SECTION 2 – Product Description and Hazardous Ingredients/Identity Information

See Chart Inside For Listing

SECTION 3 – Physical Data

Melting Point F (C): Wide Range – 900-1200 (482-649)

Vapor Pressure: Not Applicable

Vapor Density (Air = 1): Not Applicable

Solubility in Water: Negligible

Appearance and Odor: Grayish to silvery odorless sheet, strip, plate, bar, structural shapes, pipe and tubing and extrusions.

Specific Gravity (H₂O = 1): Greater Than 3

% Volatile by Volume (%): Not Applicable

Evaporation Rate: Not Applicable

SECTION 4 – Fire and Explosion Hazard Data

Flash Point F (C): Not Applicable

Extinguishing Media: Use methods applicable to surrounding area.

Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to surrounding materials. Small chips, fine turnings, and dust may ignite readily. Use coarse water spray on chips, turnings, etc. Use class D extinguishing agents or dry sand on fines. Do *not* use halogenated extinguishing agents on small chips or fines. Dust clouds may be explosive. Molten aluminum may explode on contact with water.

Flammable Limits: Not Applicable

Unusual Fire and Explosion Hazards: None

DISCLAIMER

RYERSON MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The information contained in this Material Safety Data Sheet (MSDS) is believed to be correct, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material or the results to be obtained from the use thereof. User assumes all risk and liability of any use, processing or handling of any material. Variations in methods; conditions; equipment used to store, handle or process the material; and hazards in connection with the use of the material are solely the responsibility of the user and remain at its sole discretion.

As sold, the product described in this MSDS is considered by Ryerson to be an "article" within the meaning of Title 29 of the Code of Federal Regulations, Section 1910. 1200 *et seq.* This MSDS is intended to be used solely for the purpose of satisfying informational requests made pursuant to that requirement. It is not intended to preempt, replace or expand the terms contained in Ryerson Conditions of Sale. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe workplace, to examine all aspects of its operation, and to determine if or where precautions, in addition to those described herein, are required.

SECTION 5 – Health Hazard Data

Applicable Statutory or Recommended Occupational Exposure Limits: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for aluminum alloys. See chart inside for listing of the individual constituents.

Effects of Overexposure:

Acute – Dust or fume may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever; or produce flu-like symptoms.

Chronic	Aluminum	- Physical irritation
	Bismuth	- Physical irritation
	Boron	- Physical irritation
	Cobalt	- Blood, heart, bone marrow, thyroid, lung and pancreatic damage
	Chromium	- Skin, nasal tissue damage, cancer, possible mutations
	Copper	- Physical irritation
	Iron	- Lung damage
	Lead	- Metallic taste, weakness, constipation, nausea, nervous disorder, blood and urinary damage, reproductive and possible cancer hazard
	Manganese	- Lung damage, lack of coordination
	Titanium	- Physical irritation
	Vanadium	- Lung damage
	Zinc	- Affects blood cells

Emergency and First Aid Procedures:

In the event of acute exposure, remove to fresh air, administer oxygen, and seek a physician's assistance.

SECTION 6 – Reactivity Data

Stable under normal conditions of use, storage and transportation.

For finely divided aluminum (e.g., small chips, fines):

With water: Generates hydrogen and heat slowly. Water/aluminum mixtures may be hazardous when confined.

With heat: Oxidizes at a temperature-dependent rate.

With strong oxidizers: Violent reaction with much heat generation.

With acids & alkalis: Reacts to generate hydrogen.

With halogenated compounds: Halogenated hydrocarbons can react violently with finely divided aluminum.

SECTION 7 – Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: Not Applicable

Waste Disposal Method: This material may be reclaimed for reuse.

SECTION 8 – Special Protection Information

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or code of Federal Regulations, Title 29, Part 1910.252, Welding, Cutting and Brazing, 1910.134, Respiratory Protection, and 1910-Subpart Z, Toxic and Hazardous Substances.

SECTION 9 – Special Precautions

Precautions to be Taken in Handling and Storing: Not Applicable

Other Precautions: Plasma arc cutting or welding can generate ozone. Overexposure can result in mucous, membrane irritation as well as pulmonary changes including irritation, congestion and edema.

Section 10 – Superfund Amendments and Reauthorization Act of 1986 (S.A.R.A.)

SARA Title III Section 313 and 40 CFR Part 372: The chemicals identified by (*) in Section 2 denote a toxic chemical or chemicals subject to reporting requirements of section 313 of Title III, and 40 CFR Part 372.

Section 11 – California Proposition 65

One or more of the alloys listed on this sheet contains a material known to the state of California to cause cancer or reproductive Toxicity. These are:

<u>Material</u>	<u>Listed Effect</u>
Nickel	Cancer
Lead	Reproductive Toxicity

Grade	CAS NUMBER:	7429-90-5	7440-21-3	1309-37-1	7440-50-8	ALLOYING I 7439-96-5
		*Aluminum	Silicon	Iron	*Copper	*Manganese
1100		>99.0	<1.0	<1.0	<0.3	<0.1
2011		>91.0	<0.4	<0.7	<6.0	
2017			<0.8	<0.7	<4.5	<1.0
2024			<0.5	<0.5	<4.9	<0.9
3003			<0.6	<0.7	<0.2	<1.5
3105			<0.6	<0.7	<0.3	<0.8
5005			<0.3	<0.7	<0.2	<0.2
5052			<0.3	<0.4	<0.1	<0.1
5083			<0.4	<0.4	<0.1	<1.0
5086			<0.4	<0.5	<0.1	<0.7
5454			<0.3	<0.4	<0.1	<1.0
5456			<0.3	<0.4	<0.1	<1.0
6061			<0.8	<0.7	<0.4	<0.2
6063			<0.6	<0.4	<0.1	<0.1
6262		>94.0	<0.8	<0.7	<0.4	<0.2
7075			<0.4	<0.5	<2.0	<0.3

	*Aluminum	Bismuth	*Chromium	*Cobalt	*Copper	Iron
Contaminant and Exposure Limits (mg/m ³)	As Welding Fume	Not Listed	As Metal 1 0.5 Chromium II and III cpds 0.5 0.5 Chromic Acid and Chromates 0.1c 0.05 as CrO ₃ as Cr	As Dust and Fume 0.1 0.1	As Copper Dust 1 1 As Copper Fume 0.1 0.2	As Total Particulate 10 - As Fe - 5
PEL TLV Values are time-weighted averages, except "c" indicates a ceiling or short-term exposure limit	5 5					

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7439-95-4	7440-47-3	1314-13-2	7440-32-6	7440-48-4	7439-92-1	7440-69-9	7440-62-2
Magnesium	*Chromium	*Zinc	Titanium	*Cobalt	*Lead	Bismuth	Vanadium
		<0.1					
		<0.3			<0.6	<0.6	
<0.8	<0.1	<0.3	<0.2				
<1.8	<0.1	<0.3	<0.2				
		<0.1					
<0.8	<0.2	<0.4	<0.1				
<1.1	<0.1	<0.3					
<2.8	<0.4	<0.1					
<4.9	<0.3	<0.3	<0.2				
<4.5	<0.3	<0.3	<0.2				
<3.0	<0.2	<0.3	<0.2				
<5.5	<0.2	<0.3	<0.2				
<1.2	<0.4	<0.3	<0.2				
<0.9	<0.1	<0.1	<0.1				
<1.2	<0.2	<0.3	<0.2		<0.7	<0.7	
<2.9	<0.3	<6.1	<0.2				

*Lead	*Manganese	Magnesium	Ozone	Silicon	Titanium	Vanadium	*Zinc
As Inorganic Dust and Fume 0.05 0.15	As Manganese Dust 5c 5c As Manganese Fume 1,3c 1,3c	As Magnesium Oxide Fume 10,5 resp. 10	As Gas (ppm) 0.1 0.1	10,5 resp. 10	10,5 resp. 10	As Vanadium Pentoxide Dust 0.05 resp. 0.05 resp. As Vanadium Pentoxide Fume 0.05 0.05	As Zinc Oxide Dust 10,5 resp. 10 As Zinc Oxide Fume 5, 10c 5, 10c