

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

*** Section 1 - Chemical Product and Company Identification ***

Patent Number: 6983901 & 7086618

Chemical Name: Aluminum Cast

Product Use: Fabricated Parts

Manufacturer Information

House of Metals Co. Ltd.
45 Commercial Road
Toronto, ON M4G 1Z3

Phone: (416) 421-1572
MOE – Spill Action Center: 1-800-268-6060
Emergency # 1-613-996-6666 CANUTEC

*** Section 2 - Hazards Identification ***

Emergency Overview

Product is solid metallic pieces. Product may form explosive dust/air mixtures if high concentration of product dust is suspended in air. Firefighters should wear full protective clothing and self contained breathing apparatus. Exposure to dust may be irritating to eyes, nose, and throat. This product may cause metal fume fever with resulting flu-like symptoms.

NOTE: Welding fumes may also contain contaminants from fluxes or welding consumables.

Potential Health Effects: Eyes

Dust, fumes or powder may irritate eye tissue.

Potential Health Effects: Skin

Dust or powder may irritate the skin. Some products may contain residual coating. Prolonged skin contact with the coating may result in skin sensitization (allergy) in some individuals.

Potential Health Effects: Ingestion

Not a likely route of entry. Ingestion of large amounts of dusts or particulates may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Potential Health Effects: Inhalation

Dusts of this product may cause irritation of the nose, throat, and respiratory tract.

HMIS Ratings: Health: 1 Fire: 1 Reactivity: 0 Pers. Prot.: Goggles, Gloves

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7429-90-5	Aluminum	>90
7440-42-8	Boron	<1
7440-62-2	Vanadium	<1
7439-92-1	Lead	<1
7440-32-6	Titanium	0 - 0.2
7440-47-3	Chromium	<1
64771-72-8	Coating Oil	<1
7440-31-5	Tin P	<1
7440-69-9	Bismuth P,W	<1
7439-96-5	Manganese W	<1
7439-89-6	Iron W	<1
7439-95-4	Magnesium W	<1
7440-50-8	Copper P	<1
7440-66-6	Zinc W	<1
7440-21-3	Silicon P,W	<1
7440-24-6	Strontium	0 - 0.05

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Iron oxide (1309-37-1), Magnesium oxide fume (1309-48-4), Zinc oxide (1314-13-2).

Component Information/Information on Non-Hazardous Components

This material is considered an "article" under 29 CFR 1910.1200 (Hazard Communication) and the Canadian Workplace Hazardous Materials Information System (WHMIS). The information in this MSDS is provided for situations where this article may be deformed creating dusts or fumes which may be potentially hazardous.

Coating Oils: Certain products may be coated with residual processing materials which comprise less than 1% of the total product.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation persists get medical attention.

First Aid: Skin

For skin contact, flush with large amounts of water. If irritation persists, get medical attention. Remove and wash contaminated clothing before reuse.

First Aid: Ingestion

Due to the physical nature of this material, ingestion is unlikely to occur. If ingestion of a large amount does occur, seek medical attention.

First Aid: Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. Call a physician if symptoms develop or persist.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.

High concentration of airborne dust may form explosive mixture with air. Coating oils may be present on some articles. Coating oils can be ignited by open flames and other sources of ignition.

Hazardous Combustion Products

Decomposition of this product may yield metallic oxides.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products. Avoid creation of dusts.

NFPA Ratings: Health: 1 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

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

Containment Procedures

Contain the discharged material. Remove sources of ignition.

Clean-Up Procedures

Shovel the material into waste container. Avoid the generation of dusts during clean-up.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Special Procedures

Wear appropriate personal protective equipment. See Section 8. Follow all Local, State, Federal and Provincial regulations for disposal.

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

Handling Procedures

Do not breathe fumes or dust from this material. Keep this product from heat, sparks, or open flame. Use non-sparking tools when opening or closing containers.

Storage Procedures

Keep the container tightly closed and in a cool, well-ventilated place. Store away from incompatible materials. Do not handle or store near an open flame, heat or other sources of ignition.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Aluminum (7429-90-5)

ACGIH: 10 mg/m³ TWA (metal dust)
OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Iron W (7439-89-6)

ACGIH: 5 mg/m³ TWA (respirable fraction) (related to Iron oxide (Fe₂O₃))
OSHA: 10 mg/m³ TWA (fume) (related to Iron oxide)
NIOSH: 5 mg/m³ TWA (dust and fume, as Fe) (related to Iron oxide)

Lead (7439-92-1)

ACGIH: 0.05 mg/m³ TWA
OSHA: 50 µg/m³ TWA (as Pb); 30 µg/m³ Action Level (as Pb. Poison - see 29 CFR 1910.1025)
NIOSH: 0.050 mg/m³ TWA

Magnesium W (7439-95-4)

ACGIH: 10 mg/m³ TWA (inhalable fraction) (related to Magnesium oxide)
OSHA: 10 mg/m³ TWA (total particulate) (related to Magnesium oxide fume)

Manganese W (7439-96-5)

ACGIH: 0.2 mg/m³ TWA
OSHA: 1 mg/m³ TWA (fume)
5 mg/m³ Ceiling
NIOSH: 1 mg/m³ TWA (fume)
3 mg/m³ STEL

Silicon P,W (7440-21-3)

OSHA: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Tin P (7440-31-5)

ACGIH: 2 mg/m³ TWA
OSHA: 2 mg/m³ TWA
NIOSH: 2 mg/m³ TWA

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Chromium (7440-47-3)

ACGIH: 0.5 mg/m3 TWA
OSHA: 1 mg/m3 TWA
NIOSH: 0.5 mg/m3 TWA

Copper P (7440-50-8)

ACGIH: 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist, as Cu)
OSHA: 0.1 mg/m3 TWA (fume, dusts, mists as Cu)
NIOSH: 1 mg/m3 TWA (dust and mist)

Vanadium (7440-62-2)

NIOSH: 1 mg/m3 TWA (dust, listed under Ferrovandium dust)
3 mg/m3 STEL (dust, listed under Ferrovandium dust)

Zinc W (7440-66-6)

ACGIH: 2 mg/m3 TWA (respirable fraction) (related to Zinc oxide)
10 mg/m3 STEL (respirable fraction) (related to Zinc oxide)
OSHA: 5 mg/m3 TWA (fume); 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Zinc oxide)
10 mg/m3 STEL (fume) (related to Zinc oxide)
NIOSH: 5 mg/m3 TWA (dust and fume) (related to Zinc oxide)
10 mg/m3 STEL (fume) (related to Zinc oxide)
15 mg/m3 Ceiling (dust) (related to Zinc oxide)

Engineering Controls

Use local exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields.

Personal Protective Equipment: Skin

Wear leather or other appropriate work gloves, if necessary for type of operation.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

Eye wash fountain is recommended.

*** Section 9 - Physical & Chemical Properties ***

Appearance: Solid metallic pieces	Odor: None
Physical State: Solid	pH: Not Available
Vapor Pressure: Not Available	Vapor Density: Not Available
Boiling Point: Not Available	Melting Point: 950-1215°F (510-660°C)
Solubility (H2O): <1 %	Specific Gravity: 2.5-2.9 g/cc

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid ignition sources where dust is produced. Avoid incompatible materials.

Incompatibility

This product may react with strong acids, bases and oxidizing agents. May react with chlorinated solvents to form toxic hydrogen chloride gas. Molten metal may react violently with water.

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Hazardous Decomposition

Decomposition of this product may yield metallic oxides.

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

A: General Product Information

Inhalation of metal fumes may cause metal fume fever, a flu-like illness generally lasting 24 hours or less.

Aluminum: Chronic overexposure to aluminum can result in lung damage and has been associated with asthma-like syndrome. Accumulation of aluminum in the body may result in neurological damage, anemia and bone softening. Repeated overexposure to high levels of aluminum oxide may lead to pulmonary fibrosis, a progressive lung disorder.

Iron: Chronic inhalation of iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered benign pneumoconiosis and does not ordinarily cause significant physiologic impairment.

Silicon: Silicon dust seems to have little adverse effect on lungs and does not appear to produce significant organic disease or toxic effects when exposures are kept under reasonable control. Silicosis may result from very high acute exposure or chronic exposure to silica dusts. The disease progresses through stages: cough, breathing difficulty, wheezing, recurrent chest diseases, decline of pulmonary function, fatigue and breathlessness (in later stages without exertion) and secondary heart damage.

Zinc: Zinc poisoning can cause anemia, lethargy and dizziness. Inhalation of zinc fumes may cause metal fume fever, a flu-like illness generally lasting 24 hours or less.

Manganese: Overexposure to manganese may result in CNS effects, anemia and pneumonitis which increased the risk of pneumonia.

B: Component Analysis - LD50/LC50

Iron W (7439-89-6)

Oral LD50 Rat: 984 mg/kg

Magnesium W (7439-95-4)

Oral LD50 Rat: 230 mg/kg

Manganese W (7439-96-5)

Oral LD50 Rat: 9 g/kg

Silicon P,W (7440-21-3)

Oral LD50 Rat: 3160 mg/kg

Boron (7440-42-8)

Oral LD50 Rat: 650 mg/kg

Zinc W (7440-66-6)

Oral LD50 Rat: >5000 mg/kg (related to Zinc oxide)

Bismuth P,W (7440-69-9)

Oral LD50 Rat: 5 g/kg

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Repeated Dose Effects

Exposure to metal dusts and oxides may cause fume fever. Fume fever is a temporary flu-like condition characterized by chills, fever, muscle aches and pains, nausea and vomiting. Typically the symptoms appear within a few hours after exposure and subside within 2-3 days with no permanent effects.

Chronic inhalation of fumes may affect the digestive system, nervous system, respiratory system, muscles and joints.

Carcinogenicity

A: General Product Information

No carcinogenicity data available for this product. The State of California has listed lead as a suspect carcinogen (Proposition 65). Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. Symptoms of lead toxicity include behavioral disturbances such as irritability, restlessness, insomnia, and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions, and coma.

B: Component Carcinogenicity

Iron W (7439-89-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (dust and fume) (related to Iron oxide)
IARC: Supplement 7 [1987], Monograph 1 [1972] (related to Ferric oxide) (Group 3 (not classifiable))

Lead (7439-92-1)

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans
OSHA: 50 µg/m³ TWA (as Pb); 30 µg/m³ Action Level (as Pb. Poison - see 29 CFR 1910.1025)
NTP: Reasonably Anticipated To Be A Carcinogen (Possible Select Carcinogen)
IARC: Supplement 7 [1987], Monograph 23 [1980] (evaluated as a group) (Group 2B (possibly carcinogenic to humans))

Magnesium W (7439-95-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Magnesium oxide)

Chromium (7440-47-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 49 [1990] (listed under Chromium and Chromium compounds) Supplement 7 [1987] (Group 3 (not classifiable))

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No data available for this product. Coating oils may present an environmental hazard to aquatic and terrestrial flora and fauna.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Coating Oil (64771-72-8)

Test & Species

96 Hr LC50 Pimephales promelas

>5000 mg/L

Conditions

Iron W (7439-89-6)

Test & Species

96 Hr LC50 Morone saxatilis

13.6 mg/L

Conditions

static

Lead (7439-92-1)

Test & Species

96 Hr LC50 Pimephales promelas

6.5 mg/L

48 Hr EC50 water flea

600 µg/L

Conditions

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Copper P (7440-50-8)

Test & Species

	Conditions
96 Hr LC50 Pimephales promelas	23 µg/L
96 Hr LC50 Oncorhynchus mykiss	13.8 µg/L
96 Hr LC50 Lepomis macrochirus	236 µg/L
72 Hr EC50 Scenedesmus subspicatus	120 µg/L
96 Hr EC50 water flea	10 µg/L
96 Hr EC50 water flea	200 µg/L

Zinc W (7440-66-6)

Test & Species

	Conditions
96 Hr LC50 Pimephales promelas	6.4 mg/L
96 Hr EC50 Selenastrum capricornutum	30 µg/L
72 Hr EC50 water flea	5 µg/L

Environmental Fate

No data available for this product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

B: Component Waste Numbers

Lead (7439-92-1)

RCRA: 5.0 mg/L regulatory level

Chromium (7440-47-3)

RCRA: 5.0 mg/L regulatory level

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not regulated.

Additional Info.: Aluminum and aluminum alloys are not regulated for transportation. Aluminum powder is regulated: Aluminum Powder, Class 4.3, UN 1396, PG II.

TDG Information

Shipping Name: Not regulated.

Additional Info.: Aluminum and aluminum alloys are not regulated for transportation. Aluminum powder is regulated: Aluminum Powder, Class 4.3, UN 1396, PG II.

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Aluminum (7429-90-5)

SARA 313: 1.0 % de minimis concentration (dust or fume only)

Lead (7439-92-1)

SARA 313: 0.1 % Supplier notification limit; 0.1 % de minimis concentration (when contained in stainless steel, brass, or bronze)

CERCLA: 10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

Chromium (7440-47-3)

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 2270 kg final RQ (no reporting of releases of this hazardous material is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

Copper P (7440-50-8)

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

Zinc W (7440-66-6)

CERCLA: 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the solid metal released is equal to or exceeds 0.004 inches)

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	Yes	Yes
Iron W (¹ related to Iron oxide) (² related to Iron oxide fume)	7439-89-6	Yes	Yes ¹	Yes ²	Yes ²	Yes ¹	Yes ¹
Lead	7439-92-1	Yes	Yes	Yes	Yes	Yes	Yes
Magnesium W (¹ related to Magnesium oxide fume)	7439-95-4	Yes	Yes	Yes ¹	Yes	Yes	Yes
Manganese W	7439-96-5	Yes	Yes	Yes	Yes	Yes	Yes
Silicon P,W	7440-21-3	No	Yes	Yes	Yes	Yes	Yes
Tin P	7440-31-5	Yes	Yes	Yes	Yes	Yes	Yes
Titanium	7440-32-6	Yes	No	No	Yes	No	No
Chromium	7440-47-3	Yes	Yes	Yes	Yes	Yes	Yes
Copper P	7440-50-8	Yes	Yes	Yes	Yes	Yes	Yes
Vanadium	7440-62-2	Yes	Yes	No	Yes	Yes	No
Zinc W (¹ related to Zinc oxide)	7440-66-6	Yes	Yes	Yes ¹	Yes	Yes	Yes

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Canadian WHMIS Information

A: General Product Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by CPR.

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Aluminum	7429-90-5	1 %
Lead	7439-92-1	0.1 %
Chromium	7440-47-3	0.1 %

WHMIS Classification: D2B - Acute irritant

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Aluminum	7429-90-5	Yes	DSL	EINECS
Coating Oil	64771-72-8	Yes	DSL	EINECS
Iron W	7439-89-6	Yes	DSL	EINECS
Lead	7439-92-1	Yes	DSL	EINECS
Magnesium W	7439-95-4	Yes	DSL	EINECS
Manganese W	7439-96-5	Yes	DSL	EINECS
Silicon P,W	7440-21-3	Yes	DSL	EINECS
Tin P	7440-31-5	Yes	DSL	EINECS
Titanium	7440-32-6	Yes	DSL	EINECS
Boron	7440-42-8	Yes	DSL	EINECS
Chromium	7440-47-3	Yes	DSL	EINECS
Copper P	7440-50-8	Yes	DSL	EINECS
Vanadium	7440-62-2	Yes	DSL	EINECS
Zinc W	7440-66-6	Yes	DSL	EINECS
Bismuth P,W	7440-69-9	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

MSDS History

Original MSDS: 08/09/2006

Material Safety Data Sheet

Material Name Eccomelt 356.2

MSDSID NFE-0103W

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. CAS = Chemical Abstract Service. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. CHEMTREC = Chemical Transportation Emergency Center. DSL = Canadian Domestic Substance List. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Information System. IARC = International Agency for Research on Cancer. IDLH = Immediately Dangerous to Life and Health. NDSL = Canadian Non-Domestic Substance List. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TDG = Transportation of Dangerous Goods. TLV = Threshold Limit Value. TSCA = Toxic Substances Control Act. WHMIS = Workplace Hazardous Materials Information System.

End of Sheet NFE-0103W