Material Safety Data Sheet

Material Name: Magnesium Scrap **ID: NFE-0102**

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

Chemical Name: Mixture
Product Use: Scrap metal usage.
Manufacturer Information

OmniSource Corporation
1610 Nourth Calhoun St.
Ft. Wayne IN 46808

Safety Dept. 800-666-4789

24 hr. Emergency: 800-424-9300

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
7439-95-4	Magnesium	>88
7429-90-5	Aluminum	<10
1314-13-2	Zinc	<6
7440-29-1	Thorium	<4
7440-22-4	Silver	<3
7439-96-5	Manganese	<2
7440-21-3	Silicon	<1

Component Information/Information on Non-Hazardous Components

Processing of this article may produce hazardous vapors, fumes, mists and dusts which are considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This data sheet is prepared as a guideline for typical uses of scrap materials. The user should be aware that the composition of the scrap can vary based upon the raw materials, processes used, and protective coatings that may have been applied to the original materials. The list of ingredients above are typical ingredients thought to be present in the scrap material. This list includes contaminants that may or may not be present. The percentages given vary from shipment to shipment and may not be entirely accurate for a given shipment.

Protective coatings, including paints, lubricants, corrosion inhibitors, etc., may have been applied to the material before it came under the control of the recycler. These coatings may contain hazardous materials. Typical hazardous materials contained in these coatings include: lead, zinc, chromium, and cadmium. Some organic materials may also be present. The supplier (recycler) may have no specific knowledge of the particular contaminant. However, it is anticipated that the hazardous materials present in the coatings would generally represent less than 0.1% of the total material present. The health hazards presented by these contaminants would produce their greatest potential for exposure during processes such as melting, cutting, welding. These processes could generate metal fumes that might produce the health hazards identified in section 3 of this MSDS.

It is suggested that the user protect employees by utilizing engineering controls that reduce exposures to acceptable concentrations. Where engineering controls are not feasible, appropriate personal protective equipment should be utilized.

* * * Section 3 - Hazards Identification * * *

Emergency Overview

Product is supplied as scrap metal consisting of magnesium alloy. Processing of the product for some final uses can include formation of dusts, particulates or fumes which may present certain health hazards. Dust accumulation from this product may present an explosion hazard in the presence of an ignition source. Molten metal may react violently with water. Exposure to powder or dusts may be irritating to eyes, nose and throat. Product may cause mechanical abrasions and irritation to the eyes and skin.

Hazard Statements

CAUTION Overexposure to processing fumes may cause metal fume fever which is an influenza like illness. Symptoms include headache, metallic taste in the mouth, cough, thirst, throat irritation, shortness of breath, fever, sweating and pain in the limbs. May contain thorium which may cause allergic lung and skin sensitization reactions. May contain thorium which may cause cancer. Chronic overexposure to dusts, particulates and fumes may result in discoloration of skin and hair, mucous membrane irritation, gastrointestinal damage, anemia, blood, bone, lung, liver and kidney damage, neurological damage and may cause cancer. Small amounts of thorium may be present in scrap metal and may contribute various amounts of radiation to this material.

Potential Health Effects: Eyes

Dust or powder may cause irritation and/or inflammation to the eye tissue. Rubbing may cause abrasion of cornea.

Potential Health Effects: Skin

Dust or powder may irritate the skin. Prolonged contact with this product may cause allergic skin sensitization reactions. This product may produce skin abrasions, lesions, or cuts.

Potential Health Effects: Ingestion

Ingestion of this product is unlikely; however if ingested may cause gastrointestinal disturbances, abdominal pain, fever, vomiting, and diarrhea. Ingestion of large amounts of product may produce more serious toxicities including: blood and bone damage, neurological damage, cardiovascular shock, anemia and liver damage. Thorium is a naturally occurring, radioactive metal which may be present in natural surroundings, such as soil and water. Upon ingestion of excess amounts of thorium, most will leave the body while small amounts of thorium may enter bones from the blood and accumulate, which may lead to bone cancer.

Potential Health Effects: Inhalation

Dusts, vapors, and fumes generated during processing may irritate the respiratory system. Overexposure to processing fumes may cause metal fume fever which is an influenza like illness. Symptoms include headache, metallic taste in the mouth, cough, thirst, throat irritation, shortness of breath, fever, sweating and pain in the limbs. Product may cause allergic respiratory sensitization and cancer. Severe acute overexposure or chronic overexposure to dusts or processing fumes may produce more serious toxicities including: bone softening, lung damage, weakness, anemia, kidney and liver damage, and nervous and circulatory system damage.

HMIS Ratings: Health: 1* **Fire:** 1 **Reactivity:** 0 **Pers. Prot.:** safety glasses with side shields, gloves

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

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

First Aid: Eyes

In case of contact, flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation persists get medical attention. In case of mechanical abrasions and cuts, seek medical attention immediately.

First Aid: Skin

For skin contact, wash immediately with soap and water. If irritation persists, get medical attention. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

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. Do not induce vomiting unless directed to do so by medical personnel.

First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air. If the affected person is not breathing, apply artificial respiration. Seek medical attention immediately.

First Aid: Notes to Physician

No additional information available.

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

Flash Point: Not applicable
Method Used: Not applicable
Upper Flammable Limit (UFL): Not available
Lower Flammable Limit (LFL): Not available
Auto Ignition: Not applicable
Flammability Classification: Non-flammable
Rate of Burning: Not applicable

General Fire Hazards

Dust accumulation from this product may present an explosion hazard in the presence of an ignition source. Chips and fine particles that are slightly wetted with water may generate sufficient heat to ignite spontaneously in air, burning violently with the release of hydrogen. The more massive a piece of magnesium, the more difficult it is to ignite, but once ignited, magnesium burns intensely and is difficult to extinguish. Coatings and oils applied to the product may enhance flammability.

Hazardous Combustion Products

This product may release metal oxide fumes by thermal decomposition.

Extinguishing Media

Dry chemical, soda ash, sand. Molten metal may react violently with water.

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.

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

Containment of this material should not be necessary. If dusts or particulates are generated, eliminate sources of ignition.

Clean-Up Procedures

Small pieces of this product may be collected with a broom and shovel. Collect dust or particulates using a vacuum cleaner with a HEPA filter. Put material in suitable, covered, labeled containers.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

None necessary.

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

Handling Procedures

Do not inhale dusts or vapors produced during thermal processing. Avoid eye and excessive skin contact. Use only with adequate ventilation. As with all chemicals, good industrial hygiene practices should be followed when handling this material. Special care must be taken to avoid buildup of dusts.

Storage Procedures

Keep this material in a cool, well-ventilated place.

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

Exposure Guidelines

A: General Product Information

Follow all applicable exposure limits. Keep formation of dusts, particulates and fumes to a minimum. If a regular daily exposure to the thorium contained in this product may occur, consult appropriate OSHA and ACGIH guidelines for applicable exposure limits.

B: 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); 5 mg/m3 TWA (respirable dust); 5 mg/m3 TWA (pyro powders and welding fumes)

Zinc (1314-13-2)

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

Silver (7440-22-4)

ACGIH: 0.1 mg/m3 TWA
OSHA: 0.01 mg/m3 TWA
NIOSH: 0.01 mg/m3 TWA (dust)

Manganese (7439-96-5)

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

Silicon (7440-21-3)

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

Engineering Controls

Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields.

Personal Protective Equipment: Skin

Use impervious gloves.

Personal Protective Equipment: Respiratory

When dusts or thermal processing fumes are generated and ventilation is not sufficient to effectively remove them, appropriate NIOSH approved respiratory protection must be provided.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

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

Appearance:	Depends upon scrap composition, most often appears as a hard silver colored metal.	**Odor:**	Not available
Physical State:	Solid	**pH:**	Not applicable
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	2000 deg F (1100 deg C)	**Melting Point:**	1200 deg F (650 deg C)
Solubility (H2O):	Insoluble	**Specific Gravity:**	2

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

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Molten metal may react violently with water. Fine particles, dust or fumes may be flammable or explosive. Avoid water and acids when handling particles which may react to release hydrogen.

Incompatibility

Magnesium may react with aluminum and potassium perchlorate, ammonium nitrate, barium nitrate, barium dioxide, zinc, beryllium oxide, boron phosphodiiodide, gold cyanide, hydrogen, calcium carbonate, hydrogen iodide, hydrogen peroxide, iodide, lead cyanide, mercuric oxide, mercury cyanide, methyl chloride, molybdenum trioxide, nickel cyanide, nitric acid, nitrogen dioxide, oxygen (liquid), performic acid, phosphates, potassium chlorate, chlorine, bromine, iodine, oxidizing agents and acids.

Hazardous Decomposition

Decomposition of this product may yield metallic oxides.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

No information available for the product. Operations which supply sufficient energy to the product (i.e. welding, high speed grinding or melting) can release dust or fumes which may make components of the product biologically available. Exposure to dusts or fumes from some metals including zinc, magnesium and manganese can produce a condition known as metal fume fever, a flu-like illness generally lasting 24 hours or less including symptoms of nausea, vomiting, chest tightness, muscle aches and weakness. Zinc poisoning can cause anemia, lethargy and dizziness. Early signs of manganese poisoning are sluggishness, loss of appetite, sleepiness, weakness in the legs, uncontrollable laughter, hallucinations, delusions, spastic or slow gait, speech impairment, aggressiveness, tremor, mask-like faces, and clumsy movements. Overexposure to manganese may result in CNS effects, anemia and lung damage. Aluminum soluble compounds, when ingested or inhaled, may have neurotoxic effects evidently due to the metal binding to nervous tissue. 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. Silver can be harmful if inhaled, absorbed through the skin, or ingested. Symptoms may include gastrointestinal distress, pulmonary edema, convulsions and shock. Chronic overexposure to silver may cause argyria, a gray-blue pigmentation of the skin or organs, loss of strength, convulsive seizures, mild bronchitis, and renal and liver toxicities. Thorium is a naturally occurring radioactive material. Chronic overexposure to thorium may result in allergic skin and respiratory sensitization reactions, osteoporosis, dense bone necrosis, spontaneous fractures, bone sarcomas, respiratory and circulatory diseases, liver damage and many types of cancer.

B: Component Analysis - LD50/LC50

Zinc (1314-13-2)

Inhalation LC50 Mouse: 2500 mg/m3
Oral LD50 Mouse: 7950 mg/kg

Manganese (7439-96-5)

Oral LD50 Rat: 9 gm/kg

Silicon (7440-21-3)

Oral LD50 Rat: 3160 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product. Studies on thorium workers have shown that chronic exposure to thorium may cause many different types of cancer including lung, pancreatic, and bone cancer.

B: Component Carcinogenicity

Thorium (7440-29-1)

OSHA: Present (when administered intraveneously as a colloidal dispersion of thorium 232 dioxide) (Select Carcinogen)
IARC: Monograph 78, 2001 (Group 1 (Carcinogenic to humans))

Epidemiology

No information available for the product.

Neurotoxicity

No information available for the product. Chronic overexposure to manganese compounds may result in CNS effects such as weakness, sleepiness, emotional instability and spastic gait. These effects can be permanent. Inhalation of fine aluminum particles has produced progressive encephalopathy, followed by dementia and convulsions.

Mutagenicity

No information available for the product. Manganese has caused sister chromatid exchanges in human and hamster cells.

Teratogenicity

No information available for the product. Manganese and aluminum have been shown to have teratogenic effects. Manganese has been reported to have adverse reproductive effects in experimental animals. Excessive zinc levels have been reported to be associated with increased risk for neural tube defects.

Other Toxicological Information

Under normal conditions of handling, the likelihood of inhaling or ingesting amounts necessary for these effects to occur is very small.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Silver (7440-22-4)

Test & Species	
96 Hr LC50 fathead minnow	0.0053 mg/L
96 Hr LC50 fathead minnow	0.11 mg/L
96 Hr LC50 rainbow trout	0.0076 mg/L
96 Hr LC50 water flea	0.4 ug/L
96 Hr LC50 water flea	45 ug/L

Environmental Fate

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

This product contains a component or components identified as hazardous under 40 CFR 261.24.

B: Component Waste Numbers

Silver (7440-22-4)

RCRA: waste number D011; regulatory level = 5.0 mg/L

Disposal Instructions

Byproducts and residues from this product may be reprocessed or recycled. Upon disposal, collected dusts and other similar wastes could contain a constituent identified as a hazardous waste. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Certain forms of this material (i.e. powders, borings, shavings, turnings, cuttings, dross, etc.) may be subject to U.S. DOT hazardous material shipping requirements. If products are shipped in quantities which exceed the reportable quantity (RQ) for individual components, they may also meet the requirements as DOT hazardous materials.
Hazard Class: Not available.
UN/NA #: Not available.
Packing Group: Not available.
Required Label(s): Not available.

Additional Info.: If radioactivity is detected from the product, consult your state office of radiation protection and safety for applicable transportation regulations.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

Processing of this article may produce hazardous vapors, fumes, mists and dusts which are considered hazardous under 29 CFR 1910.1200 (Hazard Communication). The following component analysis applies only to those facilities that are required to report under applicable regulations.

Thorium (7440-29-1)-CERCLA/SARA-Radionuclides and Their Reportable Quantities: final RQ=0.001 curies (3.7*10^7 Bq) (notification requirements for releases of mixtures or solutions can be found in 40 CFR 302.6(b))

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: form R reporting required for 1.0% de minimis concentration (fume or dust only)

Silver (7440-22-4)

SARA 313: form R reporting required for 1.0% de minimis concentration

CERCLA: 1000 lb 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); 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)

Manganese (7439-96-5)

SARA 313: form R reporting required for 1.0% de minimis concentration

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	FL	MA	MN	NJ	PA
Magnesium	7439-95-4	Yes	Yes	Yes	No	Yes	Yes
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	Yes	Yes
Zinc	1314-13-2	Yes	Yes	Yes	Yes	Yes	Yes
Thorium	7440-29-1	No	No	No	No	Yes	No
Silver	7440-22-4	Yes	Yes	Yes	Yes	Yes	Yes
Manganese	7439-96-5	Yes	Yes	Yes	Yes	Yes	Yes
Silicon	7440-21-3	No	No	Yes	Yes	Yes	Yes

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Magnesium	7439-95-4	Yes	Yes	Yes
Aluminum	7429-90-5	Yes	Yes	Yes
Zinc	1314-13-2	Yes	Yes	Yes
Thorium	7440-29-1	Yes	Yes	Yes
Silver	7440-22-4	Yes	Yes	Yes
Manganese	7439-96-5	Yes	Yes	Yes
Silicon	7440-21-3	Yes	Yes	Yes

C: 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%; English Item 47; French Item 197
Zinc	1314-13-2	1%; English Item 1717; French Item 1326
Silver	7440-22-4	1%; English Item 1414; French Item 256
Manganese	7439-96-5	1%; English Item 974; French Item 1077

* * * 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:

New MSDS: 7/8/1998

Revision 2/Regulatory Update: 7/19/2002

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; TLV = Threshold Limit Value; NFPA = National Fire Protection Association; HMIS = High Efficiency Particulate Air; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act.

This is the end of MSDS # NFE-0102