

**MATERIAL SAFETY DATA SHEET  
FOR  
THORN SMITH LABORATORIES  
ANALYZED QUANTITATIVE UNKNOWNNS**

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Aluminum-zinc Alloy for Al, Zn  
Catalog Number 80-1020

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Manufacturer: Auric Enterprises, Inc.  
d/b/a Thorn Smith Laboratories  
Address: 7755 Narrow Gauge Road  
Beulah, MI 49617  
Phone Number: 231-882-4672  
MSDS Number: TSL-013  
Date Prepared: November 25, 1985  
Date Updated: December 21, 2011

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**SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION**

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COMPONENTS - Chemical Name & Common Names  
(Hazardous Components 1% or greater; Carcinogens 0.1% or greater)

Aluminum

Formula: Al  
CAS No.: 7429-90-5  
OSHA PEL: N/E  
ACGIH TLV: 10 mg/m<sup>3</sup> (metal & oxide)  
OTHER LIMITS: N/A

Zinc Metal

Formula: Zn  
CAS No.: 7440-66-6  
Synonyms: Powdered zinc; blue powder  
Molecular Weight: 65.37  
OSHA PEL: 5 mg/m<sup>3</sup> TWA, 10 mg/m<sup>3</sup> STEL for zinc oxide fume  
ACGIH TLV: TWA=10 mg/m<sup>3</sup>  
OTHER LIMITS: N/A

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**SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS**

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Boiling Point: 2450° (Al), 907° C (1665° F) (Zn)  
Specific Gravity (H<sub>2</sub>O=1) 7.14 (Zn)  
Vapor Pressure (mm Hg and Temperature): 1 @ 1284° (Al); 1 @ 487° C (909° F) (Zn)  
Melting Point: 660° (Al); 800° C (>1500° F)  
Vapor Density (Air=1): 2.702 (Al)  
Evaporation Rate ( =1): N/A  
Solubility in Water: Insoluble in water.  
Water Reactive: No  
Appearance and Odor: Silver Metallic, Gray. Odorless.

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### SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

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Fire: Damp aluminum dust may spontaneously heat with liberation of hydrogen to form explosive mixtures. Molten may explode on contact with water (Al). Zinc powder is not pyrophoric but will burn in air at elevated temperatures. Autoignition temperatures are approximately 680° C (dust cloud) or 460° C (layer). Bulk dust in damp state may heat spontaneously and ignite on exposure to air. Releases flammable hydrogen gas upon contact with acids or alkali hydroxides.

Explosions: Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Extinguisher Media: Dry Powder (Al); Smother with a suitable dry powder (sodium Chloride, magnesium oxide) (Zn)

Special Fire Fighting Procedures: Fire fighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in the positive pressure mode. Do not use water or halogen on dust fires.

Unusual Fire and Explosion Hazardous: Releases flammable hydrogen gas upon contact with acids or alkali hydroxides (Zn).

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### SECTION 4 - REACTIVITY HAZARD DATA

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STABILITY:  Stable  Unstable

Conditions to Avoid: See Section 3.

Incompatibility: Anhydrous Bromine (Al). Dangerous or potentially dangerous with strong oxidizing agents, lower molecular weight chlorinated hydrocarbons, strong acids and alkalies.

Hazardous Decomposition Products: See above (Al); Hydrogen in moist air, zinc oxide with oxygen at high temperature. Zinc metal, when melted, produces zinc vapor which oxidizes and condenses in air to form zinc fume.

HAZARDOUS POLYMERIZATION:  May Occur  Will Not Occur

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## SECTION 5 - HEALTH HAZARD DATA

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PRIMARY ROUTES OF ENTRY:

Inhalation     Ingestion     Skin Contact     Eye Contact  
 Not Hazardous

CARCINOGEN LISTED IN:

NTP     OSHA     IARC Monograph     Not Listed

TOXICITY: No Information found.

HEALTH HAZARDS - Acute:

Inhalation: Inhalation of high concentrations of freshly formed oxide fumes may cause metal fume fever characterized by a metallic taste in the mouth, dryness and irritation of the throat, and influenza-like symptoms. Symptoms of poisoning include abdominal cramps, anemia, muscle weakness, and headache.

Ingestion: Symptoms of poisoning include abdominal cramps, anemia, muscle weakness, and headache. Extremely large oral dosages may produce gastrointestinal disturbances, due both to mechanical effects and the possibility of reaction with gastric juice to produce zinc chloride.

Skin Contact: May cause irritation.

Eye Contact: May cause irritation.

HEALTH HAZARDS - Chronic: Inhalation or ingestion of particles may result in metal fume fever.

Signs and Symptoms of Exposure: See metal fume fever above.

Medical Conditions Generally Aggravated by Exposure: Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation and support if necessary.

Inhalation: If a person breathes in large amounts, move the exposed person to fresh air. Get medical attention immediately.

Ingestion: If swallowed, induce vomiting immediately by giving two glasses of water and sticking a finger down throat. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Remove any contaminated clothing. Wipe off excess from skin. Particles embedded in skin can produce blebs with a protracted course. Immediately wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Get medical attention immediately.

## SARA TITLE III HAZARD CATEGORIES AND LISTS

Acute: Yes    Chronic: Yes    Flammability: Yes    Pressure: No  
Reactivity: Yes

Extremely Hazardous Substance: No  
CERCLA Hazardous Substance: No  
SARA 313 Toxic Chemicals: Yes  
TSCA Inventory: No

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## SECTION 6 - CONTROL AND PROTECTIVE MEASURES

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Respiratory Protection (Specify Type): NIOSH/MSHA approved dust/fume respirator should be used to avoid excessive inhalation of particulates when exposure exceeds TLV's.

Protective Gloves: Wear protective gloves.

Eye Protection: Wear chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area. Contact lenses should not be worn while working with this material..

VENTILATION TO BE USED: Use adequate general or local exhaust ventilation to keep fume or dust levels as low as possible.

Local Exhaust       Mechanical (General)      \_\_\_\_\_ Special  
\_\_\_\_\_ Other (Specify)

Other Protective Clothing and Equipment: Wear clean body-covering clothing.

Hygienic Work Practices: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. Avoid flames and fire.

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## SECTION 7 - PRECAUTIONS FOR SAFE HANDLING & USE/LEAK PROCEDURES

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Steps to be taken if material is spilled or released: Remove all sources of ignition and provide mild ventilation in area of spill. Substance may be pyrophoric and self-ignite. Clean-up personnel require protective clothing, goggles, and dust/mist respirators. Sweep or vacuum up the spill in a manner that does not disperse aluminum-zinc alloy in the air and place the aluminum-zinc alloy in a closed container for recovery or disposal. Dispose in a RCRA approved facility.

Waste Disposal Methods: Dispose in accordance with all applicable local, state, and federal environmental regulations.

Precautions to be taken in handling and storage: Keep in a tightly closed container, away from fire and sparks. Store in cool, dry ventilated area away from sources of heat,

moisture and incompatibilities. Store in accordance with all applicable local, state, and federal environmental regulations.

Other precautions and/or special hazards:

1. Halogen acids and sodium hydroxide in contact with aluminum may generate mixtures of hydrogen.
2. Finely divided aluminum will form explosive mixtures in air. It will also form explosive mixtures in air in the presence of bromates, iodates or ammonium nitrate.
3. When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in sow cavities as well. Moisture must be driven off prior to remelting.
4. Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. If metal is hot and is touched, burns can result.
5. Hard alloy ingots must be stress-relieved to prevent explosion when sawed.
6. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infra-red radiation, and ultra-violet radiation.

NFPA Rating: Health: **2** Flammability: **1** Reactivity: **1**.

HMIS Rating: No information available.

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## SECTION 8 - TRANSPORTATION DATA & ADDITIONAL INFORMATION

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### Domestic (D.O.T.)

Proper Shipping Name:            Chemicals, n.o.s.            (Non-regulated)

### International (T.M.O.)

Proper Shipping Name:            Chemicals, n.o.s.            (Non-regulated)

### AIR (I.C.A.O.)

Proper Shipping Name:            Chemicals, n.o.s.            (Non-regulated)

**NOTE:**

**Per section 172.101 of 49CFR Chapter 1, this material is a mixture of a hazardous material (Zinc Metal Powder) and a non-hazardous material (Aluminum); and can be shipped as N.O.S. (non-regulated). Actual mixture quantities are identified on the analysis sheet which accompanies every order.**

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and assume no liability resulting from its use. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.