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MSDS of Aluminum powder

SECTION 1 – CHEMICAL PRODUCT:

Product/Material: AL-100
Chemical Name: Aluminum powder
Chemical Formula: Al
CAS #: 7429-90-5

SECTION 2 – HAZARDS IDENTIFICATION:

Emergency Overview: Reactive flammable material. Contact with water liberates extremely flammable gases.
Prolonged exposure may cause chronic effects. Irritating to respiratory system. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Potential Short Term Health Effects

Eyes: Contact may irritate eyes.
Inhalation: Irritating to respiratory system.
Target Organs: Eyes. Respiratory system.
Main Symptoms: Irritation.

SECTION 3 – HAZARDOUS MATERIALS/INFORMATION ON INGREDIENTS:

<u>Component</u>	<u>Wt. %</u>	<u>CAS #</u>
Aluminum	98 - 100	7429-90-5

SECTION 4 – FIRST AID MEASURES:

First Aid Procedures

Eye Contact: Get medical attention if irritation develops or persists. Immediately flush eyes with plenty of water for at least 15 minutes.

Skin Contact: Wash off with warm water and soap. Get medical attention if irritation develops or persists.

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.

Ingestion: If ingestion of a large amount does occur, seek medical attention.

General Advice: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5 – FIRE FIGHTING MEASURES:

Flash Point: Not available

Auto-Ignition Temperature: 1094 °F (590 °C) (calculated)

Suitable Extinguishing Media: DRY sand, sodium chloride powder, graphite powder or Met-L-X powder.

Fire Fighting Equipment/Instructions: Do not get water inside containers.

Extinguishing Media Which Must Not Be Used For Safety Reasons: Carbon dioxide (CO2) foam water.

General Fire Hazards: May react violently with water.

Unusual Fire & Explosion Hazards: Substance will react with water releasing flammable, toxic or corrosive gasses and runoff.

Hazardous Combustion Products: May include oxides of oxides of carbon.

SECTION 6 – ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Keep unnecessary personnel away. Ventilate closed spaces before entering.

Methods for Cleaning up: Sweep up or gather material and place in appropriate container for disposal. Avoid dust formation. Cover with DRY earth, DRY sand, or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. DO NOT GET WATER on spilled material or inside containers.

Containment Procedures: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area).

SECTION 7 – HANDLING AND STORAGE:

Handling: Do not handle or store near an open flame, heat or other sources of ignition. Avoid contact with skin and eyes. Avoid prolonged exposure. Do not breathe gas/fumes/vapor/spray.

Storage: Keep away from heat and sources of ignition. Store in cool place. Keep container tightly closed. Keep the container dry.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION:

Engineering Measures to Reduce Exposure: Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye Protection: Wear safety glasses with side shields.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use.

Hygiene Measures: When using do not smoke. Avoid contact with skin, eyes and clothing.

Hand protection: Protective gloves.

Exposure Limits

ACGIH - Threshold Limits Values - Time Weighted Averages (TLV-TWA)

Aluminum 7429-90-5 10 mg/m³ TWA (metal dust)

OSHA - Final PELs - Time Weighted Averages (TWAs)

Aluminum 7429-90-5 15 mg/m³ TWA (total dust)
5 mg/m³ TWA (respirable fraction)

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES:

Form: Solid
Density: 20.86 – 22.53 lbs/gal (calculated)
Specific Gravity: 2.5 – 2.7 (calculated)
Volatile Organic - Wt. %: 0 % Weight (calculated)

SECTION 10 – CHEMICAL STABILITY & REACTIVITY INFORMATION:

Stability: Risk of ignition. Stable at normal conditions.
Hazardous Decomposition Products: Reacts violently with water, liberating highly flammable gases.
Conditions to Avoid: Heat, flames and sparks. Exposure to moisture.
Incompatibility: Caustics. This product is incompatible with nitrates.

SECTION 11 – TOXICOLOGICAL INFORMATION:

Routes of Exposure: Inhalation.
NIOSH - Pocket Guide - Target Organs
Aluminum 7429-90-5 Respiratory system, skin, eyes
Carcinogenicity: Not expected to be hazardous by OSHA criteria.
Sensitization: Not expected to be hazardous by OSHA criteria.
Chronic Toxicity: Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Local Effects: Contact may irritate or burn eyes. Irritating to respiratory system.
Reproductive Toxicity: Not expected to be hazardous by OSHA criteria.
Symptoms and Target Organs:
NIOSH - Pocket Guide - Target Organs
Aluminum 7429-90-5 Respiratory system, skin, eyes

SECTION 12 – ECOLOGICAL INFORMATION:

Ecotoxicity: No information available; no data is available on the product itself.

Environmental Effects: No data available for this product.

SECTION 13 – DISPOSAL CONSIDERATIONS:

Disposal instructions: This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4(b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Material should be recycled if possible.

SECTION 14 – TRANSPORT INFORMATION:

DOT Not regulated.

IATA Not regulated.

IMDG Not regulated.

SECTION 15 – REGULATORY INFORMATION:

Inventories

<u>Country(s) or Region</u>	<u>Inventory Name</u>	<u>On inventory</u>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (CCS)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Japanese Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Korean Inventory of Chemicals (KICS)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "YES" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

US Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA - Section 313 - Emission Reporting

<u>Component</u>	<u>CAS #</u>	<u>Wt. %</u>	<u>Data Value</u>
Aluminum	7429-90-5	99.65	1.0% de minimis concentration (dust or fume only)

State Regulations: This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Massachusetts - Right to Know List

Aluminum	7429-90-5	Present
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New Jersey - Right to Know Hazardous Substance List

Aluminum	7429-90-5	sn 0054 (dust and fume); sn 2110 (powder, coated);
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Pennsylvania RTK (Right to Know) List
Aluminum 7429-90-5

sn2111 (powder, uncoated, non-pyrophoric)

Environmental hazard

Rhode Island Hazardous Substance List
Aluminum 7429-90-5

Toxic, Flammable

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 302 Extremely Hazardous Substance: No

Section 311 Hazardous Chemical: Yes

Hazard Categories:

Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	Yes

HMIS Ratings:

Health	1
Flammability	1
Reactivity	2

SECTION 16 – OTHER INFORMATION:

“Although the information and recommendations set forth herein (hereinafter “Information”) are presented in good faith and believed to be correct as of the date hereof, TTT Engineers makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will TTT Engineers be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information.

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