Advanced Material Specialists, Inc.

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888-255-3924

MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: **Aluminum Metal Powder**
Product Item: 101031
Product Code: HA 1031

Supplier: **HAI Advanced Material Specialists, Inc.**
1688 Sierra Madre Circle
Placentia, CA 92870
(714)-414-0575

Emergency Contact: 888-255-3924
Chemical Family: Metal
Formula: Al
Molecular Weight:26.98

SECTION 2 – HAZARDOUS INGREDIENTS

IMPORTANT! This section covers the material from which these products are manufactured. Dust and gases produced when spraying with normal use of these products are covered in Section 5.

Material or Component	CAS #	Concentration	OSHA PEL	ACGIH TLV	Other Limits *
Aluminum	7429-90-5	0.0-100.0%	15 mg/m^3	10 mg/m^3	5 mg/m^3 resp
Material or Component	**RTECS #**	**OSHA STEL**	**OSHA CEIL**	**ACGIH STEL**	**ACGIH CEIL**
Aluminum	BD0330000	No data	No data	No data	No data

US EPA SARA TITLE III

Material or Component	CAS Number	Sec. 302 (EHS)	Sec. 304 RQ	Sec. 313 (TRI)
Aluminum	7429-90-5	No	No	Yes

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: [ ] Gas [ ] Liquid [X] Solid
Melting Point: 660°C
Boiling Point: 2467°C
Specific gravity (water=1): 2.7 g/cm^3
Vapor pressure (mmHg): 1 mm at 1284°C
Vapor Density (Air=1): No data
Evaporation rate (Butylacetate=1): No data
Solubility in water: Insoluble
Percent volatile (vol.): No data
Corrosion Rate: No data
Appearance and odor: Silver-white, metallic powder, no odor.
Other: None

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

Flash point:	N/A	Method Used: Unknown
Auto ignition temp.:	760°C	
Flammable limits:	N/A	
Explosive Limits:	LEL: N/A	UEL: N/A
Extinguishing Media:	Carbon Dioxide, Foam, Type D. Use suitable extinguishing medias for surrounding materials and type of fire.	
Special fire fighting procedures:	Firefighters should wear full face, self-contained breathing apparatus with full protective clothing. Avoid contact with skin and eyes, or inhalation as fumes from fire are hazardous. To extinguish fire gently cover with extinguishing agent, allow to cool and gradually burn itself out.	
Unusual fire and explosion hazards:	Fresh, very finely ground aluminum, may be pyrophoric when its particle size is 0.03 um or less.	
	Dust is moderately flammable/explosive by heat, flame or chemical reaction with powerful oxidizers.	
	May ignite on contact with vapors of AsCl3, SCl2, Se2Cl2, PCl5; on contact with barium peroxide; contact with O2; mixtures with picric acid+water after a delayed period; exothermic reaction with water+iron powder which emits hydrogen gas; and spontaneously ignites in CS2 vapors.	
	May ignite and react violently with mixtures of sodium peroxide and O2+H2O; on contact with halogens and interhalogens.	
	May react violently with hydrochloric acid, hydrofluoric acid, hydrogen chloride gas and disulfur dibromide; non-metals phosphorus, sulfur and selenium; with sulfur, Sb or As when heated; and potential violent reaction with sodium peroxide.	
	May have a violent or explosive reaction when heated with metal oxides, oxosalts (nitrates, sulfates), some halocarbons, sulfides or hot copper oxide worked with an iron or steel tool.	
	May have an explosive reaction with sodium sulfate above 800C; in powdered form with KClO4+Ba(NO3)2+KNO3+H2O and Ba(NO3)2+KNO3+sulfur +vegetable adhesives+H2O after delayed period; powder forms sensitive explosive mixture with oxidants; mixtures with powdered AgCl, NH4NO3, or NH4NO3+Ca(NO3)2+formamide+H2O are powerful explosives; mixtures with ammonium peroxodisulfate+water is explosive; and potential explosive reaction with CCl4 during ball milling operations.	
	Many violent or explosive reactions with the following halocarbons have occurred in industry: bromomethane, bromotrifluoromethane, CCl4, chlorodifluoromethane, chloroform, chloromethane, cloromethane+2-methylpropane, dichlorodifluoromethane, 1,2-dichloroethane, dichloromethane, 1,2-dichloropropane, 1,2,-difluorotetrafluoroethane, fluorotrichloroethane, hexachloroethane_alcohol, polytrifluorethylene oils an dgreases, tetrachlorethylene, tetrafluoromethane, 1,1,1-trichloroethane, trichloroethylene, 1,1,2-trichlorotrifluoroethane, and trichlorotrifluoroethane-dichlorobenzene. (Sax, Dangerous Properties of Industrial Materials, eighth edition).	

SECTION 5 – REACTIVITY DATA

Stability:	Unstable [ ]	Stable [X]
Conditions to avoid - Instability:	None	
Incompatibility – Materials to avoid:	Water, oxidizing agents, acids, acid chlorides, harsh alkalis and halogenated compounds. See also "Unusual Fire and Explosion Hazards".	
Hazardous decomposition products:	Hydrogen gas	
Hazardous polymerization:	Will occur [ ]	Will not occur [X]
Conditions to avoid – Hazardous polymerization:	None	
Product corrosive:	Yes [ ]	No [X]

SECTION 6 – HEALTH HAZARD DATA

Health Hazards (Acute and Chronic)

To the best of our knowledge the chemical, physical and toxicological properties of aluminum have not been thoroughly investigated and recorded.

Aluminum compounds have many commercial uses and are commonly found in industry. Many of these materials are active chemically and thus exhibit dangerous toxic and reactive properties. Inhalation of fine aluminum oxide particles is associated with Shaver's disease. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Inhalation:	Acute:	Inhalation of dust or powder may cause irritation to the respiratory system.
	Chronic:	.Inhalation of finely divided powder may cause pulmonary fibrosis.
Ingestion:	Acute:	No acute health effects recorded.
	Chronic:	May be implicated in Alzheimer's disease.
Skin:	Acute:	No acute health effects recorded.
	Chronic:	.No chronic health effects recorded.
Eye:	Acute:	Dust and powder may cause abbrasive irritation.
	Chronic:	No chronic health effects recorded.

Target Organs: No target organs recorded.

Carcinogenicity: NTP? [No] ARC Monographs? [No] OSHA Regulated? [No]

Carcinogenicity / other Information:

None recorded

Recommended Exposure Limits

See "Section II"

LD 50 / LC 50

No toxicity data recorded

Signs and Symptoms of Exposure

Inhalation:	May cause a red, dry, throat and coughing.
Ingestion:	No acute or chronic health effects recorded.
Skin:	No acute or chronic health effects recorded.
Eye:	May cause redness, itching ad watering.

Medical Conditions Generally Aggravated by Exposure

Pre-existing respiratory disorders.

Emergency and First Aid Procedures

Inhalation:	Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention if symptoms persist.
Ingestion:	Not Applicable.
Skin:	Wash area with mild soap and water.
Eye:	Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if irritation persists.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/DISPOSAL

Steps to be Taken in Case Material is Released or Spilled

Wear appropriate respiratory and protective equipment specified in section 8-control measures. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust. Use non-sparking tools.

Waste Disposal Method

Dispose of in accordance with local, state and federal regulations.

RCRA WASTE ID CODE D001

Hazard Label Information

Store in cool, dry place.

Store in tightly sealed container.

Wash thoroughly after handling.

Precautions to be Taken in Handling

Aluminum slowely generates hydrogen and heat on contact with water. Handle and store in a controlled environment and inert gas such as argon.

Precautions to be Taken in Storing

Aluminum slowely generates hydrogen and heat on contact with water. Handle and store in a controlled environment and inert gas such as argon.

Other Precautions

None

SECTION 8 - CONTROL MEASURES

Protective Equipment Summary - Hazard Label Information:

NIOSH approved respirator

Impervious gloves

Safety glasses

Protective clothing to prevent contact with skin

Respiratory Equipment (Specify Type)

NIOSH - approved respirator

Eye Protection

Safety glasses

Protective Gloves

Rubber or vinyl disposable gloves

Other Protective Clothing

Protective gear suitable to prevent contamination

Ventilation

Local exhaust, minimum face velocity of 60 f.p.m, to maintain concentration at or below PEL, TLV

Other: None

Work/Hygienic/Maintenance Practices

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels.

Use good housekeeping and sanitation practices.

Do not use tobacco or food in work area.

Wash thoroughly before eating and smoking.

Do not blow dust off clothing or skin with compressed air.

SECTION 9 – OTHER

Control of Substances Hazardous to Health Regulations
EH40 Occupational Exposure Limits

Maximum Exposure Limit: NE
Occupational Exposure Standard: 10 mg/m^3 Total Inhalable Dust. 5 mg/m^3 Respirable Dust

Land Transport (US DOT)

UN/NA Number:	1396
DOT Hazard Label:	Dangerous When Wet
DOT Hazard Class:	4.3, PG II
DOT Ppoper Shipping Name:	Aluminum

HAI Advanced Material Specialists, Inc. requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents, and contractors of the information on this MSDS and any product hazard and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the product hazards and safety information.

Company Policy or Disclaimer

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Abbreviations used: N/A=Not Applicable NE: Not Established