



MATERIAL SAFETY DATA SHEET

Quick Identifier: Aluminum Oxide

I. PRODUCT IDENTIFICATION

| | | | |
|--------------------|----------------|--------------------------|--------------------------------|
| Trade Name: | Aluminum Oxide | Formula: | Al ₂ O ₃ |
| Synonyms: | Alumina | Molecular Weight: | |
| CAS #: | 1344-28-1 | | |

II. HAZARDOUS INGREDIENTS

| <u>Hazardous Components:</u> | <u>OSHA PEL:</u> | <u>ACGIH TLV:</u> | <u>Other Limits:</u> |
|------------------------------------|--------------------------------------|------------------------|----------------------|
| Aluminum Oxide | 5 mg/m ³ | 10 mg/m ³ | |
| Sec. 302 (EHS): | No | Sec. 304 RQ: No | Sec. 313: yes |
| HMIS Ratings (0-4): Health: | 1 | Flammability: 0 | Reactivity: 0 |
| HMIS Protective Equipment: | E – Glasses, Gloves, Dust Respirator | | |

III. PHYSICAL DATA

| | | | |
|---------------------------------------------|--------|--------------------------------------|-----------|
| Boiling Point: | 2977 C | Melting Point: | 2050 C |
| Specific Gravity (H₂O=1): | 4 g/cc | Vapor Density (Air=1): | N/A |
| Vapor Pressure (mm Hg): | N/A | Evaporation Rate: | N/A |
| % Volatiles by Volume: | 0 | Solubility in H₂O: | Insoluble |

Appearance and Odor: White Powder; no odor

IV. FIRE AND EXPLOSION HAZARDS DATA

Flash Point/Method: Not applicable
Explosive Limits: LEL: N/A UEL: N/A

Extinguishing Media: Dry Powder (Class D) or sand
Special Fire Fighting Procedures: Do not use water or halogen on dust fires
Unusual Fire and Explosion Hazards: Damp aluminum dust may spontaneously heat with liberation of hydrogen to explosive mixtures. Molten may explode on contact with water

V. HEALTH HAZARD INFORMATION

Routes of Entry: Inhalation, Ingestion and Eyes.
Target Organs: N/A
Carcinogenicity: NTP: No **IARC Monographs:** No **OSHA Regulated:** No
LD50/LC50: No toxicity data recorded.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: Dust or powder may cause irritation to the upper respiratory tract.

Chronic: Inhalation of finely divided powder has been reported as a cause of pulmonary fibrosis. Aluminum in aerosols has been implicated in Alzheimer's disease.

Ingestion:

Acute: N/A

Chronic: N/A

Skin:

Acute: Dust or powder may cause irritation

Chronic: N/A

Eye:

Acute: N/A

Chronic: N/A

Signs and Symptoms of Exposures:

Inhalation: N/A

Ingestion: N/A

Skin: N/A

Eye: N/A

Medical Conditions Generally

Aggravated by Exposure:

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: If exposed to excessive levels of metal fumes, remove to fresh air, seek medical attention immediately

INGESTION: N/A

SKIN: N/A

EYE: Flush with water for at least 15 mins.

VI. REACTIVITY DATA

| | |
|---------------------------------------------|----------------------------------------------------------------------|
| Stability: | Stable |
| Incompatibility (Material to avoid): | Anhydrous Bromine. Also see NFPA # 491M |
| Hazardous Decomposition Products: | See Special Precautions See Fire & Explosion Section |
| Hazardous Polymerization: | Will not occur |
| Conditions to Avoid: | Reacts with water slowly generating heat and explosive hydrogen gas. |

VII. SPILL OR LEAK PROCEDURES

Special Precautions:

- 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 re-melting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitride could cause explosion. This applies to the collection of moisture in saw cavities as well. Moisture must be driven off prior to re-melting.
- 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 touched, burns can result.
- 5) Hard alloy ingots in the 200 and 7000 series 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.

VIII. SPECIAL PROTECTION INFORMATION

| | |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Respiratory Protection: | NIOSH/MSHA – Approved dust & fume respirator should be used to avoid excessive inhalation of particulates when exposure exceeds TLV's |
| Ventilation: Local Exhaust: | Should be utilized when welding, burning, sawing, brazing, grinding or machining |
| Mechanical (General): | N/A |
| Protective Gloves: | Should be used as required by exposure |
| Eye Protection: | Safety goggles or glasses should be utilized as required by exposure. |
| Other Protective Clothing or Equipment: | Should be utilized as required by the welding standards. |
| Work/Hygienic/Maintenance Practices: | Normal hygienic practices. |

IX. ADDITIONAL COMMENTS

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direct supervision of a "technically qualified individual", as defined in 40 CFR 710.2(aa).

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