

MATERIAL SAFETY DATA SHEETS

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1. PRODUCT IDENTIFICATION/DESCRIPTION

PRODUCT NAME: Calcined Alumina
SYNONYMS: Aluminum Oxide, Alpha Alumina, E67 Alumina, Micro Alumina
FORMULA: Al₂O₃ (> 99%)

2. COMPOSITION

Ingredient	CAS#	Weight(%)	PEL-OSHA (mg/m ³)	TLV-ACGIH (mg/m ³)	Carcinogen
(Y/N)					
Alpha Alumina (Aluminum Oxide-Al ₂ O ₃)	1344-28-1	>99	10	10	N

*Materials are regulated under OSHA 29 CFR 1900.1200, Hazard Communication Standard.
*Source of exposure limit data; ACGIH Threshold Limit Values; (OSHA Tables Z-1-A, Z-2, Z-3)
*All ingredients are listed under TSCA.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Non-flammable, granular or powder. Abrasive particulate may cause minor eye and skin irritation. Inhalation of high concentrations may cause transient upper respiratory irritation. Product is non-combustible and stable.

Primary Route(s) of Entry: *Inhalation:* Yes *Skin:* No *Ingestion:* No *Other:* No

POTENTIAL HEALTH EFFECTS

Acute:

EYE: Dusts may cause minor irritation.

SKIN: May cause minor abrasions. Not absorbed through skin.

INGESTION: Relatively non-toxic. Ingestion is not anticipated under normal working conditions.

INHALATION: Product will act as a nuisance dust. Inhalation of high concentrations of dust may cause coughing and mild, transitory respiratory irritation. May cause slight to moderate irritation of mucous membranes.

Chronic:

INHALATION: Long-term dust inhalation in excess of the PEL or TLV may decrease the ability of the lungs to clear particulate matter which may cause shortness of breath and increased susceptibility to respiratory disease.

SIGNS AND SYMPTOMS: Irritation, redness, pain, tear formation, blurred vision, light sensitivity, shortness of breath, decreased chest expansion, dry cough, and fatigue.

Medical Conditions Aggravated by Exposure: Repeated inhalation of dusts over time may aggravate pre-existing respiratory disease. Precautions should be taken to alleviate the pre-existing medical condition.

TARGET ORGANS: Lungs

CARCINOGENICITY: **NTP:** No **IARC:** No **OSHA:** No

4. FIRST AID MEASURES

EYES: Flush eyes with large amounts of water as needed

SKIN: Wash contaminated area with soap and water. Wash contaminated clothing. Seek medical attention if symptoms persist.

INHALATION: If inhalation of high concentrations occurs, move to fresh air. If breathing has stopped, a certified professional should give CPR. Seek immediate medical attention.

INGESTION: Do not induce vomiting unless suggested by a doctor. Seek medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not Applicable

FLAMMABLE LIMITS: LEL: Not Applicable UEL: Not Applicable

AUTO IGNITION TEMPERATURES: Not Applicable.

EXTINGUISHING MEDIA: Use media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARDS: Non-flammable, non-combustible. Product will not burn.

HAZARDOUS DECOMPOSITION PRODUCTS: None

FIRE FIGHTING INSTRUCTIONS: Firefighters should wear a NIOSH/MSHA approved full-faced self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout or bunker gear.

NFPA CLASSIFICATION: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

6. ACCIDENTAL RELEASE MEASURES

Isolate hazard area and deny entry to unauthorized and/or unprotected personnel. Avoid dust generation. Water mist may be added as necessary to control the level of airborne dusts. Respiratory protection for clean-up personnel depends on the level of exposure anticipated. (See Section 8. *EXPOSURE CONTROLS/PERSONAL PROTECTION*) Gently shovel or scoop into clean dry container for later recycle or disposal. Comply with Federal, State and Local regulations regarding reporting of spills and disposal.

7. HANDLING AND STORAGE

Store in dry area in closed containers. Storage and work areas should be periodically cleaned to minimize dust accumulation. Avoid dust inhalation and promulgation. DO NOT use compressed air or dry sweeping to remove dust from work area. Dusts should be removed using an appropriately equipped vacuum. Exhaust air should be filtered through a HEPA (high-efficiency particulate air) filter. If an appropriate vacuum is unavailable, only wet clean-up methods should be used (i.e. wet sweeping, misting, etc.) Moisture should be added as necessary to reduce exposure to airborne respirable dust. See OSHA 29 CFR 1910.94 (Ventilation) and 29 CFR 1910.1000 (Air Contaminants).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Under normal working conditions, below acceptable exposure guidelines, none is required. For concentrations above the PEL but less than 10X the PEL, a NIOSH/MSHA approved dust mist respirator

should be worn. Appropriate respirator selection will be dependent upon the magnitude of exposure and should be selected in accordance with 29 CFR 1910.134. (See Section 2. *COMPOSITION* for PEL's and TWA's).

SKIN PROTECTION: Protective gloves, as needed, to prevent skin contact.

EYE PROTECTION: Safety-glasses with side shields or goggles to prevent dust and particles from entering the eye. See OSHA 29 CFR 1910.133.

OTHER: Under dusty conditions, employees should wear coveralls or other suitable work clothing. Contaminated clothing must be vacuumed before removal. DO NOT REMOVE dust from clothing by blowing or shaking.

ENGINEERING CONTROLS: Use general ventilation. Local exhaust may be necessary for processes which generate large quantities of airborne dust. Keep exposures below applicable OSHA PEL's and ACGIH-TLV's.

9. PHYSICAL PROPERTIES

Formula	Al ₂ O ₃
Boiling Point	Not Applicable
Melting Point	2050°C
Specific Gravity	3.60-3.94
Percent Volatile	NAIF
Evaporation Rate	N/A
Solubility in Water	Insoluble
Solubility in Alcohol	NAIF
Solubility in Solvents	Very slightly soluble in acid & alkalies
pH	7-8
Appearance/Odor	Granular white or light brown color//odorless

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal ambient conditions of temperature and pressure.

REACTIVITY/INCOMPATIBILITY: None

DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

EYE: Particulate matter may cause physical injury to the eye.

SKIN: May cause minor irritation.

INHALATION: May cause minor transient respiratory irritation.

INGESTION: Ingestion of large quantities may result in gastrointestinal irritation and eventually interference with phosphate absorption which results in rickets.

CHRONIC: Many studies indicate that aluminum oxide dust acts as an "inert" material when inhaled.

SUBCHRONIC: No Data

OTHER: Implantation of aluminum oxide into rats has resulted in tumors at the site of application.

Intraperitoneal administration of 90 mg/kg aluminum oxide has resulted in tumors of the lungs, thorax or respiratory system.

12. ECOLOGICAL INFORMATION

Aluminum oxide is not expected to exert an ecotoxic effect or bioconcentrate in the food chain.

13. DISPOSAL CONSIDERATIONS

Dispose of according to applicable federal, state, and local regulations. Dispose per 40 CFR 261 and 262.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT): Not Classified

15. KEY

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstracts Service
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendment and Reauthorization Act
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act

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