

Material SAFETY DATA SHEET

Claus Catalyst

Activated Alumina

Section 1: Product Identification

MSDS Name: Aluminum Oxide
Synonyms: Aluminum Oxide; Alumina.

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Section 2: Composition/Information on Ingredients

CAS#	Chemical Name	%
1344-28-1	Aluminum oxide	99.2

Hazard Symbols: None Listed.
Risk Phrases: None Listed.

Section 3: Hazards Identification

EMERGENCY OVERVIEW

Off-White powder: DUST MAY PRODUCE MECHANICAL IRRITATION TO THE MUCOUS MEMBRANES OF THE EYES, NOSE, AND THROAT AND UPPER RESPIRATORY TRACT

IMMEDIATE HEALTH EFFECTS:

- Eye:** Not expected to cause prolonged or significant eye irritation. Material is dusty and may scratch the surface of the eye.
- Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.
- Ingestion:** Not expected to be harmful if swallowed. Ingestion of large amounts may cause gastrointestinal irritation. Expected to be a low ingestion hazard.
- Inhalation:** The dust from this material may cause respiratory irritation. Chronic inhalation of fine dusts may cause lung damage.

Section 4: First Aid Measures

- Eye:** Flush eyes with running water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.
- Skin:** To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse. Get medical attention if any symptoms develop.
- Ingestion:** If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person.
- Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Section 5: Fire Fighting Measures

FIRE CLASSIFICATION:

Classification: Not flammable or combustible. This material will burn although it is not easily ignited.

NFPA RATINGS:

Health: 0
Flammability: 0
Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: NDA
Autoignition: 280 °C (536 °F)
Flammability (Explosive) Limits (% by volume in air):
Lower: NDA
Upper: NDA

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions:

Material will not burn unless preheated. Clear fire area of all non-emergency personnel. Only enter confined fire space with full gear, including a positive pressure, approved, self-contained breathing apparatus. Cool surrounding equipment, fire-exposed containers and structures with water. Container areas exposed to direct flame contact should be cooled with large quantities of water (500 gallons water per minute flame impingement exposure) to prevent weakening of container structure.

Combustion Products:

Combustion may form: Aluminum Oxides

Section 6: Accidental Release Measures

Protective Measures:

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management:

Avoid creating dust clouds. Shovel, sweep up or use industrial vacuum cleaner to pick up. Place in container for proper disposal. Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Reduce airborne dust and prevent scattering by moistening with water.

Reporting:

U.S.A. regulations require reporting spills of this material that could reach any surface waters. Report spills to local authorities as appropriate or required.

Section 7: Handling and Storage

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. REFER TO PRODUCT LABEL OR MANUFACTURERS TECHNICAL BULLETINS FOR THE PROPER USE AND HANDLING OF THIS MATERIAL.

Wash thoroughly after handling. Wash hands before eating. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Do not ingest or inhale.

General Storage Information:

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8: Exposure Controls/ Personal Protection:

ENGINEERING CONTROLS:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

CAS# 1344-28-1:

- United States OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
- Belgium - TWA: 10 mg/m³ VLE (as Al)
- France - VME: 10 mg/m³ VME
- Japan: 0.5 mg/m³ OEL (respirable dust); 2 mg/m³ OEL (total dust)
- Malaysia: 10 mg/m³ TWA (particulate matter containing no asbestos <1% crystalline)
- Netherlands: 10 mg/m³ MAC
- Spain: 10 mg/m³ VLA-ED

PERSONAL PROTECTIVE EQUIPMENT:

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9: Physical and Chemical Properties:

Physical State:	Solid
Color:	White
Odor:	Odorless.
pH:	Not available.
Vapor Pressure:	Negligible.
Viscosity:	Not available.
Boiling Point:	2980 deg C
Freezing/Melting Point:	2000 deg C
Auto-ignition Temperature:	Not applicable.
Flash Point:	Not applicable.
Explosion Limits, lower:	Not available.
Explosion Limits, upper:	Not available.
Decomposition Temperature:	Not available.
Solubility in water:	Negligible in water.
Specific Gravity/Density:	4.0 (water=1)
Molecular Formula:	Al ₂ O ₃
Molecular Weight:	101.9612

Section 10: Stability and Reactivity:

Chemical Stability:

Stable.

Conditions to Avoid:

Incompatible materials.

Incompatibilities with Other Materials:

Reacts with chlorine trifluoride or ethylene oxide. Exothermic reaction above 200C with halocarbon vapors produces toxic hydrogen chloride and phosgene.

Hazardous Decomposition Products:

Hydrogen chloride, phosgene.

Hazardous Polymerization:

Has not been reported.

Section 11: Ecological Information:

RTECS#:

CAS# 1344-28-1: BD1200000

LD50/LC50:

Not available.

Carcinogenicity:

Aluminum oxide - Not listed by ACGIH, IARC, or NTP.

Other:

See actual entry in RTECS for complete information.

ADDITIONAL TOXICOLOGY INFORMATION:

The toxicological properties of this product have not been tested or have not been tested completely and its handling or use may be hazardous. EXERCISE DUE CARE.

Long-term exposure to high dust concentrations may cause non-debilitating lung changes.

Section 12: Ecological Considerations:

Products which are considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local waste regulator for advice. Empty containers must be decontaminated before returning for recycling.

Section 13: Transport Information:

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

Shipping Descriptions per regulatory authority:

IATA

Not regulated as a hazardous material.

IMO

Not regulated as a hazardous material.

RID/ADR

Not regulated as a hazardous material.

REGULATORY INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Not available.

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 1344-28-1: 0

Canada

CAS# 1344-28-1 is listed on Canada's DSL List.

CAS# 1344-28-1 is listed on Canada's Ingredient Disclosure List.

US FEDERAL

TSCA

CAS# 1344-28-1 is listed on the TSCA inventory.

Disclaimer:

is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.