micromeritics®

SAFETY DATA SHEET

Ref. Mat. Alumina

Date of Preparation: 10/09/2020

SECTION 1: IDENTIFICATION

SDS #: **004-16816-00MSDS**
004-16821-00MSDS
004-16822-00MSDS

Product Identification: Ref. Mat. Alumina
CAS Number: Not Available
Chemical Formula: Gamma Aluminum Oxide
Volumes: ~0.49 m^2/g, ~5 m^2/g
Other Designations: Not Available
Recommended Use: Reference material.
Restrictions: For laboratory use only.
Supplier Information:

Micromeritics Instrument Corp.	Contact:	Human Resources
4356 Communications Drive	Phone:	(770) 662-3636
Norcross, GA 30093-2901 USA	Fax:	(770) 662-3696

Manufacturer: Norton Chemical Process Products Corp. PO Box 350, Akron, OH 44309
(216) 673-5860, (800) 424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification: Category 1 Skin sensitization
Signal word: Warning
Hazard Statement:
H305 - May be harmful if swallowed and enters airways
H316 - Causes mild skin irritation
H335 - May cause respiratory irritation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled
Pictograms:

Precautionary Statements:
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P264 - Wash skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area

P280 - Wear eye protection/ face protection
P285 - In case of inadequate ventilation wear respiratory protection
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P312 - Call a POISON CENTER or doctor/ physician if you feel unwell
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

Potential Health Effects

Target Organs:

Acute Effects

Inhalation: If dust is created there is the possibility of breathing in irritant powders. Prolonged (years) exposure to silica can lead to silicosis. Silica may also be carcinogen. Respiratory passage may feel dry.

Eye: Dust may cause irritation.

Skin: Dust may cause a feeling of dryness. Roughness may cause minor abrasion.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	% wt
Aluminum Oxide (alumina)	1344-28-1	99.7-99.9
Silicon Dioxide (silica)	14808-60-7	0.1-0.2
Ferric Oxide (iron oxide)	1309-37-1	0.1

Trace Impurities:

SECTION 4: FIRST-AID MEASURES

Inhalation: For acute exposure remove victim to fresh air. Call for medical assistance.

Eye Contact: Irrigate eyes with clean water for at least 15 minutes. If irritation continues, get medical assistance.

Skin Contact: Wash affected areas with clean water. Consult a physician if irritation continues.

Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians:

Special Precautions/Procedures:

SECTION 5: FIRE-FIGHTING MEASURES

Flammability Classification: Not Applicable
Extinguishing Media: Not Applicable
Unusual Fire or Explosion Hazards: Not Applicable
Hazardous Combustion Products: Not Applicable
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill /Leak Procedures:
Small Spills: Landfill in accordance with local, state and federal regulations. Be guided by presence of chemicals to which these articles may have been exposed in user's process.
Large Spills
Containment: Do not release into sewers or waterways.
Cleanup: Minimize dust, sweep, shovel or vacuum. Watch footing if particles fall onto walkways.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

SECTION 7: HANDLING AND STORAGE

Handling Precautions: Minimize dust, sweep, shovel or vacuum. Watch footing if particles fall onto walkways.
Storage Requirements: Avoid rough handling.
Regulatory Requirements:

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Aluminum Oxide	10 mg/m^3	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.
Silicon Dioxide	0.05 mg/m^3	none estab.	0.025 mg/m^3	none estab.	none estab.	none estab.	none estab.
Ferric Oxide	10 mg/m^3	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-

routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Flash Point: Not Applicable

Flash Point Method: Not Applicable

Burning Rate: Not Applicable

Autoignition Temperature: Not Applicable

LEL: Not Applicable

UEL: Not Applicable

Physical State: Not Applicable

Appearance and Odor: White shapes - odorless.

Odor Threshold: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density (Air=1): Not Applicable

Formula Weight: Not Applicable

Density: Not Applicable

Specific Gravity (H2O=1, at 4 °C): 1.0 - 1.2

pH: Not Applicable

Water Solubility: Insoluble

Other Solubilities: Not Applicable

Boiling Point: Not Applicable

Freezing/Melting Point: Not Applicable

Viscosity: Not Applicable

Refractive Index: Not Applicable

Surface Tension: Not Applicable

% Volatile: Not Applicable

Evaporation Rate: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: This is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Strong oxidizing agents, Acids, Bases.

Conditions to Avoid: Place in dry, clean area. Do not over stack cartons.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:

LD50 Oral - rat - 6,450 mg/kg
Inhalation: no data available
Dermal: no data available

Skin corrosion/irritation:

Skin - rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation:

Eyes - rabbit
Result: Mild eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity

This product contains crystalline silica (CS), which is considered a hazard by inhalation. IARC has classified inhalation of CS as a carcinogen for humans (Group 1). CS is listed by NTP as a known human carcinogen. Inhalation of CS is also a known cause of silicosis, a noncancerous lung disease.

IARC: 1 - Group 1: Carcinogenic to humans (Quartz Silica)

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: no data available

Additional Information: RTECS: FF9335000

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

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not Available
Environmental Fate: Not Available
Environmental Degradation: Not Available
Soil Absorption/Mobility: Not Available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
Disposal Regulatory Requirements: As sold these articles are inert and non-hazardous. If customer's processing introduces hazardous (toxic) materials to the articles be guided by their nature. Minimize dust when handling these articles.
Container Cleaning and Disposal: Not listed.

SECTION 14: TRANSPORT INFORMATION

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Not regulated
Shipping Symbols: Not Applicable
Hazard Class: Not regulated
ID No.: Not regulated
Packing Group: Not Applicable
Label: Not Applicable
Special Provisions (172.102):
Not Applicable

Packaging Authorizations
a) Exceptions: Not Applicable
b) Non-bulk Packaging: Not Applicable
c) Bulk Packaging: Not Applicable

Quantity Limitations
a) Passenger, Aircraft, or Railcar: Not Applicable
b) Cargo Aircraft Only: Not Applicable

Vessel Stowage Requirements
a) Vessel Stowage: Not Applicable
b) Other: Not Applicable

SECTION 15: REGULATORY INFORMATION

EPA Regulations:
RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261.): Not classified
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)
OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance (29CFR 1910.)

California Prop. 65: This product contains crystalline silica (respirable) which is known to the State of California to cause cancer.

SECTION 16: OTHER INFORMATION

Prepared By: Zuniga, A.

Revision Notes:

Rev. A – Revision (04/17/03)

Rev. B – Revision (07/30/04)

Rev. C – Changed description (02/18/10)

Rev. D – Updated to new standards (10/24/14)

Rev. E – Update to EU REACH requirements (05/22/19)

Rev. F – Revision (10/09/20)

Abbreviations Key:

CAS: Chemical Abstracts Service GHS: Globally Harmonized System

GHS: Globally Harmonized System

OSHA: Occupational Safety and Health Act PEL: Permissible Exposure Limit

PEL: Permissible Exposure Limit

ACGIH: American Conference of Government Industrial Hygienists

TLV: Threshold Limit Values

NIOSH: National Institute for Occupational Safety and Health

REL: Recommended Exposure Limit TWA: Time Weighted Average STEL: Short-Term Exposure Limit

TWA: Time Weighted Average

STEL: Short-Term Exposure Limit

IDLH: Immediately Dangerous to Life or Health

Literature References:

https://n.b5z.net/i/u/10091461/f/MSDS-NANOPOWDERS/US3008.pdf - US Research Nanomaterials, Inc. Aluminum Oxide MSDS

https://img1.guidechem.com/msdspdf/14808-60-7.pdf - GuideChem Silica Dioxide MSDS

https://img1.guidechem.com/msdspdf/1309-37-1.pdf - GuideChem Ferric Oxide MSDS

Additional Hazard Rating Systems: Not Applicable

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