

Safety Data Sheet

Material Name: ALUMINUM OXIDE

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

ALUMINUM OXIDE

Synonyms

ALUNDUM, ALUMINA, DIALUMINUM TRIOXIDE, ALUMINUM SESQUIOXIDE, ALPHA-ALUMINA, BETA-ALUMINA, GAMMA-ALUMINA, ALUMITE, ALMITE, MARTOXIN, BAIKALOX POLISHING CHEMICALS (BAIKOWSKI INTERNATIONAL CO.), TABULAR ALUMINA (ALCOA), ALUMINUM OXIDE (AL₂O₃), ALUMINUM TRIOXIDE, LINDE A,B,C (UNION CARBIDE CORPORATION), UCAR SF-6, SF-18, SF-2 (UNION CARBIDE CORPORATION), D ALUMINA POWDERS (UNION CARBIDE CORPORATION), 420003704, WESGO ALUMINA CERAMICS, AL₂O₃

Chemical Family

metal oxides

Product Use

commercial chemical

Restrictions on Use

None known.

24 HR EMERGENCY RESPONSE:

CHEMTEL (800) 255-3924, 1-813-248-0573

Details of the supplier of the safety data sheet

ILLINOIS VALLEY MINERALS LLC, 575 N 18TH RD, TONICA, IL 61370, PHONE: 815-442-8402

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Specific target organ toxicity - Single exposure - Category 3

Specific target organ toxicity - Repeated exposure - Category 1

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated exposure. (lungs)

Precautionary Statement(s)

Prevention

Do not breathe dust or mist.

Use only outdoors or in a well-ventilated area.

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Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

Response

IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor if you feel unwell.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Other Hazards

None known.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
1344-28-1	Aluminum oxide	100

Section 4 - FIRST AID MEASURES

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eyes

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute

respiratory tract irritation

Delayed

lung damage

Note to Physicians

Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

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Negligible explosion hazard.

Hazardous Combustion Products

miscellaneous decomposition products

Advice for firefighters

Avoid inhalation of material or combustion by-products.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Stay upwind and keep out of low areas.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Collect spilled material in appropriate container for disposal. Avoid generating dust. Clean up residue with a high-efficiency particulate filter vacuum.

Environmental Precautions

Prevent entry into sewers, drains, ditches, underground or confined spaces and waterways.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Observe good hygiene and safety practices when handling this product. Avoid creation of dust. Do not breathe dust. Use only outdoors or in a well-ventilated area. Do not eat, drink, or smoke when using this product. Avoid contact with eyes, skin and clothing. Wash hands thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Store and handle in accordance with all current regulations and standards. Store in a tightly closed container. Store in a well-ventilated area. Keep locked up. Keep separated from incompatible substances.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Aluminum oxide	1344-28-1
ACGIH:	1 mg/m ³ TWA respirable particulate matter (related to Aluminum insoluble compounds)
OSHA (US):	15 mg/m ³ TWA total dust ; 5 mg/m ³ TWA respirable fraction
Mexico:	10 mg/m ³ TWA VLE-PPT

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Provide local exhaust ventilation system. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits. Ensure compliance with applicable exposure limits.

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Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Wear safety glasses with side-shields. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

Wear appropriate chemical resistant clothing.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100. Any air-purifying full-facepiece respirator equipped with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100 or P100. Any powered, air-purifying respirator with a high-efficiency particulate filter. Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white to gray crystals or powder	Physical State	solid
Odor	odorless	Color	white to gray
Odor Threshold	Not available	pH	Not available
Melting Point	2053 - 2072 °C (3727 - 3762 °F)	Boiling Point	2980 °C (5396 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not flammable
Autoignition Temperature	Not available	Flash Point	Not available
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	1 mmHg @ 2158 °C
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	3.965 at 25 °C

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Water Solubility	(Insoluble)	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	Not available
Physical Form	crystals or powder	Volatility	<0.5 %
Molecular Formula	AL ₂ O ₃	Molecular Weight	101.96

Solvent Solubility

Slightly Soluble

mineral acids, strong alkali

Practically Insoluble

nonpolar organic solvents

Section 10 - STABILITY AND REACTIVITY

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid generating dust. Avoid contact with incompatible materials.

Incompatible Materials

halo carbons, halogens, combustible materials, oxidizing materials

Hazardous decomposition products

Thermal decomposition products: miscellaneous decomposition products.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

irritation, METAL FUME FEVER, difficulty breathing, lung damage

Skin Contact

itching

Eye Contact

mechanical irritation

Ingestion

no information is available

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Aluminum oxide (1344-28-1)

Oral LD50 Rat >5000 mg/kg

Product Toxicity Data

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Acute Toxicity Estimate

Oral	> 2000 mg/kg
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Immediate Effects

respiratory tract irritation

Delayed Effects

lung damage

Irritation/Corrosivity Data

respiratory tract irritation

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

Aluminum oxide	1344-28-1
ACGIH:	A4 - Not Classifiable as a Human Carcinogen (related to Aluminum insoluble compounds)
DFG:	Category 2 (considered to be carcinogenic for man ;fibre dust)

Germ Cell Mutagenicity

No information available for the product.

Tumorigenic Data

No data available

Reproductive Toxicity

No information available for the product.

Specific Target Organ Toxicity - Single Exposure

No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure

lungs

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

respiratory disorders

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No information available for the product.

Bioaccumulative Potential

No information available for the product.

Mobility

No information available for the product.

Other Toxicity

No additional information is available.

Section 13 - DISPOSAL CONSIDERATIONS

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Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:

No Classification assigned.

International Bulk Chemical Code

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Aluminum oxide	1344-28-1
SARA 313:	1 % de minimis concentration (fibrous forms)

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Specific Target Organ Toxicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Aluminum oxide	1344-28-1	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Aluminum oxide	1344-28-1
	1 %

WHMIS Classification

D2B

Component Analysis - Inventory

Aluminum oxide (1344-28-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI -	KR KECI -	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
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							Annex 1	Annex 2						
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 2 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

Updated: 05/18/2015

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

Supplier gives no warranty whatsoever, including the warranties of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser shall determine the quality and suitability

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of the product. Supplier expressly disclaims any and all liability for incidental, consequential or any other damages arising out of the use or misuse of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights.