

1. Identification of the Substance/Preparation and of the Company/Undertaking**Product Identifier**

Product Name Aluminum Oxide Powder

Product Code(s) 40-6425-400-080, 40-6430-600-080, 40-6603-030-080, 40-6605-050-080,
40-6609-095-080, 40-6612-125-080

(M)SDS Number 1339775_A

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory use

Uses advised against No information available

Details of the Supplier of the Safety Data Sheet

Manufacturer Buehler

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Middle East/Africa: +1 760 476 3959
Asia Pacific: +1 760 476 3960
Europe: +1 760 476 3961

2. Hazards Identification**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

carcinogenicity	Category 2
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GHS Label elements, including precautionary statements**EMERGENCY OVERVIEW**

Signal Word	WARNING		
hazard statements	Suspected of causing cancer		
			
Appearance	Gray	Physical state	Powder(s)
		Odor	Odorless

Precautionary Statements - Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)

Not Applicable

OTHER INFORMATION

No information available

Interactions with other chemicals

No information available.

3. Composition/information on Ingredients

Chemical name	CAS No.	Weight-%	Trade secret
Aluminum oxide	1344-28-1	90 - 100%	*
Titanium dioxide	13463-67-7	0 - 10%	*
Iron oxide	1309-37-1	0 - 10%	*
Magnesium oxide	1309-48-4	< 0.5%	*
Calcium oxide	1305-78-8	< 0.6%	*

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. First Aid Measures

FIRST AID MEASURES

Eye Contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Skin Contact	Wash with soap and water.
INHALATION	Remove to fresh air.
INGESTION	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects, Both Acute and Delayed

Most important symptoms and effects	Difficulty in breathing.
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Indication of Any Immediate Medical Attention and Special Treatment Needed

Notes to physician	Treat symptomatically.
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5. Fire-fighting measures**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

No information available.

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure adequate ventilation.

OTHER INFORMATION Refer to protective measures listed in Sections 7 and 8.

Environmental Precautions

Environmental Precautions See section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

7. Handling and Storage

Precautions for Safe Handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible products None known based on information supplied.

8. Exposure Controls/Personal Protection

Control Parameters

Exposure guidelines The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Aluminum oxide 1344-28-1	TWA: 1 mg/m ³ respirable particulate matter	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³
Iron oxide 1309-37-1	TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³	IDLH: 2500 mg/m ³ Fe dust and fume TWA: 5 mg/m ³ Fe dust and

		respirable fraction (vacated) TWA: 10 mg/m ³ fume and total dust Iron oxide (vacated) TWA: 5 mg/m ³ respirable fraction regulated under Rouge	fume
Magnesium oxide 1309-48-4	TWA: 10 mg/m ³ inhalable fraction	TWA: 15 mg/m ³ fume, total particulate (vacated) TWA: 10 mg/m ³ total particulate	IDLH: 750 mg/m ³ fume
Calcium oxide 1305-78-8	TWA: 2 mg/m ³	TWA: 5 mg/m ³ (vacated) TWA: 5 mg/m ³	IDLH: 25 mg/m ³ TWA: 2 mg/m ³

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate Engineering Controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection No special protective equipment required.

Skin and Body Protection Wear protective gloves and protective clothing.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. Physical and Chemical Properties

Physical and chemical properties

Physical state	Powder(s)		
Appearance	Gray	Odor	Odorless
Color	No information available	Odor Threshold	No information available
Property	Values	Remarks Method	
pH	No data available	None known	
Melting / freezing point	>2000°C (>3632°F)	None known	
Boiling point / boiling range	>2900°C (>5252°F)	None known	
Flash Point	No data available	None known	
Evaporation Rate	No data available	None known	
Flammability (solid, gas)	No data available	None known	
Flammability Limit in Air			
Upper flammability limit	No data available		
Lower flammability limit	No data available		
Vapor pressure	No data available	None known	
Vapor density	No data available	None known	
Specific gravity	3.9 g/cm ³	None known	
Water Solubility	Insoluble		

Solubility in Other Solvents	no data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive Properties	no data available	
Oxidizing Properties	no data available	

OTHER INFORMATION

Softening Point	No data available
VOC Content (%)	0%
Particle Size	No data available
Particle Size Distribution	

10. Stability and Reactivity

Reactivity

No data available.

Chemical Stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to Avoid

dust formation.

Incompatible Materials

None known based on information supplied.

Hazardous decomposition products

None known based on information supplied.

11. Toxicological Information

Information on likely routes of exposure**Product information**

INHALATION	Specific test data for the substance or mixture is not available.
Eye Contact	Specific test data for the substance or mixture is not available.
Skin Contact	Specific test data for the substance or mixture is not available.
INGESTION	Specific test data for the substance or mixture is not available.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum oxide 1344-28-1	> 5000 mg/kg (Rat)	-	-
Titanium dioxide	> 10000 mg/kg (Rat)	-	-

13463-67-7			
Iron oxide 1309-37-1	> 10000 mg/kg (Rat)	-	-
Magnesium oxide 1309-48-4	= 3990 mg/kg (Rat) = 3870 mg/kg (Rat)	-	-
Calcium oxide 1305-78-8	= 500 mg/kg (Rat)	-	-

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization No information available.

Mutagenic effects No information available.

carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X
Iron oxide 1309-37-1		Group 3		

IARC (International Agency for Research on Cancer)
 Group 2B - *Possibly Carcinogenic to Humans*
 Group 3 - *Not Classifiable as to Carcinogenicity in Humans*
 OSHA (Occupational Safety and Health Administration of the US Department of Labor)
 X - Present

Reproductive Toxicity No information available.

STOT - Single Exposure No information available.

STOT - Repeated Exposure No information available.

Chronic toxicity Contains a known or suspected carcinogen. Titanium dioxide has been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B) by inhalation.

Target organ effects Respiratory System. EYES. skin. Gastrointestinal tract (GI). Lungs.

Aspiration hazard No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document
 Not Applicable

12. Ecological Information

ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron oxide 1309-37-1		96h LC50: = 100000 mg/L (Danio rerio)		
Calcium oxide 1305-78-8		96h LC50: = 1070 mg/L (Cyprinus carpio)		

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Other adverse effects

No information available.

13. Disposal Considerations

Waste Treatment Methods

Disposal Methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated packaging

Dispose of contents/containers in accordance with local regulations.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Calcium oxide 1305-78-8	Corrosive

14. Transport information

DOT
Proper shipping name Not regulated
Hazard class NON REGULATED
 N/A

TDG NOT REGULATED

MEX Not regulated

ICAO Not regulated

IATA
Proper Shipping Name Not regulated
 NON REGULATED

IMDG/IMO Not regulated
RID Not regulated
ADR Not regulated
ADN Not regulated

15. Regulatory Information

International Inventories

TSCA Complies
 DSL All components are listed either on the DSL or NDSL

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard NO
 Chronic health hazard yes
 Fire hazard NO
 Sudden Release of Pressure Hazard NO
 Reactive hazard NO

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Aluminum oxide 1344-28-1	X	X	X	X	
Titanium dioxide 13463-67-7	X	X	X		
Iron oxide 1309-37-1	X	X	X		

Magnesium oxide 1309-48-4	X	X	X		
Calcium oxide 1305-78-8	X	X	X		

International regulations

Mexico

National Occupational Exposure Limits

Component	Carcinogen Status	Exposure limits
Titanium dioxide 13463-67-7 (0 - 10%)		Mexico: TWA= 10 mg/m ³ : STEL= 20 mg/m ³
Iron oxide 1309-37-1 (0 - 10%)		Mexico: TWA 5 mg/m ³
Magnesium oxide 1309-48-4 (< 0.5%)		Mexico: TWA 10 mg/m ³
Calcium oxide 1305-78-8 (< 0.6%)		Mexico: TWA 2 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

CANADA

WHMIS Hazard Class

Not Determined

16. Other Information

NFPA	Health hazards 1	flammability 0	Instability 0	Physical and chemical hazards - PERSONAL PROTECTION X
HMIS	Health hazards 1*	flammability 0	Physical hazard 0	

Chronic Hazard Star Legend * = Chronic Health Hazard

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Disclaimer

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End of Safety Data Sheet