



Martoxid® TM-3220; Martoxid® TM-3310; Martoxid® TM-3510

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 07
Canadian Workplace Hazardous Material Information System (WHMIS) 2015 rev 2022
Mexico NOM-018-STPS-2000; NOM-018-STPS-2015
GHS (Globally Harmonized System)

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Name: Martoxid® TM-3220; Martoxid® TM-3310; Martoxid® TM-3510
Pure substance/mixture Substance
Chemical Name Aluminum Oxide

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Thermally conductive filler.
Industrial use --
Professional use --
Consumer use --
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Company: J.M. Huber Corporation
3100 Cumberland Boulevard, Suite 600
Atlanta, GA 30339 USA
Tel: +1 678 247-7300

Internet www.huberadvancedmaterials.com

Contact E-Mail www.huberadvancedmaterials.com/contact

1.4. Emergency telephone number CHEMTREC: +1 800 424 9300 or International 1+703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

OSHA Regulatory Status This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

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Prevention

Employ good industrial hygiene practice
Do not handle until all safety precautions have been read and understood
Wash thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust

Response

IF ON SKIN: Wash with plenty of soap and water
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
If swallowed, rinse mouth with water (only if the person is conscious)
Drink plenty of water

Storage Store away from incompatible materials

Disposal Dispose of contents/containers in accordance with local regulations

Additional Information: None.

Hazards not otherwise classified (HNOC) Not classified.

Hazards associated with known or reasonably anticipated uses None known.

Unknown Acute Toxicity 0% of the mixture consists of ingredient(s) of unknown toxicity.

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SECTION 3: Composition/information on ingredients

Pure substance/mixture

Substance

Chemical Name	CAS NUMBER:	Weight-%
Aluminum oxide	1344-28-1	>99

SECTION 4: First aid measures

4.1. Description of first aid measures

General Advice

When in doubt or if symptoms are observed, get medical advice. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye Contact

In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact

Wash with plenty of soap and water.

Ingestion

Rinse mouth thoroughly with water.

Inhalation

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

Aspiration hazard

Not an expected route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment should be symptomatic and supportive.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water spray (fog). Foam. Dry chemical. Carbon dioxide (CO₂).

Unsuitable Extinguishing Media

None known.

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5.2. Special hazards arising from the substance or mixture

None known.

5.3. Advice for firefighters

Special protective equipment for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

Fire-fighting measures

In case of fire and/or explosion do not breathe fumes.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid dust formation. Keep unauthorized personnel away.

For non-emergency personnel

Keep unauthorized personnel away.

For emergency responders

Keep unauthorized personnel away. Use personal protection recommended in Section 8.

6.2. Environmental precautions

Avoid runoff to waterways and sewers.

6.3. Methods and material for containment and cleaning up

Large Spill: Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust

Small Spill: Vacuum or sweep material and place in a disposal container

6.4. Reference to other sections

Section 8: Exposure controls and personal protection. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Minimize dust generation and accumulation. Provide local exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from incompatible materials. Keep container tightly closed and dry.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

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8.1. Control parameters

Occupational exposure limits

Aluminum oxide

OSHA

TWA: 15 mg/m³ total dust
TWA: 5 mg/m³ respirable fraction
(vacated) TWA: 10 mg/m³ total dust
(vacated) TWA: 5 mg/m³ respirable fraction

OSHA - Final PELs -TWA

15 mg/m³ TWA

ACGIH

5 mg/m³ TWA

NIOSH

TWA: 10 mg/m³

Canada - Ontario - OEL - TWA EVs

--

1 mg/m³

PNEC (Predicted No Effect Concentration)

No information available

DNEL (Derived No Effect Level)

No information available

Biological Limit Values

None

8.2. Exposure controls

Engineering Measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Use exhaust ventilation to keep airborne concentrations below exposure limits. In case of insufficient ventilation, wear suitable respiratory equipment.

Personal protective equipment

Eye/Face Protection

Wear safety glasses with side shields (or goggles).

Skin and Body Protection

Wear suitable protective clothing.

Hand Protection

For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

Respiratory Protection

In case of inadequate ventilation wear respiratory protection.

Thermal hazards

None known.

Hygiene Measures

Follow general hygiene considerations recognized as common good workplace practices. The worker should wash daily at the end of each work shift, and prior to eating, drinking, smoking, etc.

Environmental Exposure Controls

Dispose of in accordance with local regulations.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:

Physical State

Solid Powder

Color

White

Odor

Odorless

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pH:	8.8 11% Water
Melting point / Freezing point	2000 °C (3632 °F) (1013 hPa)
Initial boiling point and boiling range	2980 °C (5396 °F) (1013 hPa)
Freezing Point	Not applicable
Flash Point	Not applicable Product/Substance is inorganic Solid Melting Point : > 300°C
Flammability	No information available
Upper flammability limit:	--
Lower flammability limit:	--
Vapor Pressure	1 hPa (2158 °C)
Relative Vapor Density	Not applicable Melting Point : > 300°C
Density	No data available
Relative Density	0.85
Water Solubility	Insoluble
Solubility in other solvents	No information available
Partition coefficient	No information available Not applicable Product/Substance is inorganic
Autoignition Temperature	Aluminum oxide has no potential to explode.
Decomposition Temperature	~2000 °C (> 2050 °C)
Viscosity	No information available.
Kinematic viscosity	Not applicable Solid
Dynamic viscosity	Not applicable Solid
Explosive Properties	None
Oxidizing Properties	None
Particle Characteristics	No information available
VOC Content (%)	Not applicable

9.2. Other information**9.2.1. Information with regard to physical hazard classes**

Not applicable

9.2.2. Other safety characteristics

Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity	No data available
10.2. Chemical stability	Stable under normal conditions
10.3. Possibility of hazardous reactions	None under normal processing
10.4. Conditions to avoid	Incompatible materials Decomposition Temperature ~ 2000 °C (> 2050°C) < / =0.3% : Al ₂ O ₃ , Water
10.5. Incompatible materials	Strong acids
10.6. Hazardous decomposition products	None known

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SECTION 11: Toxicological information

General Information

Users are advised to consider national Occupational Exposure Limits or other equivalent values.

11.1. Information on toxicological effects

Aluminum oxide

Serious eye damage/eye irritation

Non-irritant : Rabbit

Skin Corrosion/Irritation

Non-irritant : Rabbit

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive Effects

No indication of effects on fertility.

No indication of effects on developmental toxicity.

Acute Toxicity

Based on available data, the classification criteria are not met.

Chronic Toxicity

Based on available data, the classification criteria are not met.

Chronic Effects

Based on available data, the classification criteria are not met.

Respiratory Sensitization

Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Skin Corrosion/Irritation

Based on available data, the classification criteria are not met.

Skin Sensitization

Based on available data, the classification criteria are not met.

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive Effects

This product does not contain any known or suspected reproductive hazards.

Reproductive Toxicity

Based on available data, the classification criteria are not met.

Carcinogenicity

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Specific target organ toxicity - Single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity - Repeated exposure

Based on available data, the classification criteria are not met.

Information on Likely Routes of Exposure

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Inhalation	Do not breathe dust
Ingestion	Ingestion is not a likely route of exposure
Skin	Avoid prolonged or repeated contact with skin Contact with dust can cause mechanical irritation or drying of the skin
Eyes	Avoid contact with eyes Dust contact with the eyes can lead to mechanical irritation
Aspiration hazard	Not an expected route of exposure.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors

11.2.2. Other information Not applicable

SECTION 12: Ecological information

12.1. Toxicity Not considered to be harmful to aquatic life

Aluminum oxide

WGK Classification (AwSV) 1346 WGK: nwg

12.2. Persistence and degradability The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential Not likely to bioaccumulate.

Bioconcentration factor (BCF) No data available.

12.4. Mobility in soil None.

12.5. Results of PBT and vPvB assessment This substance does not meet the criteria for classification as PBT or vPvB.

12.6. Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors

12.7. Other Adverse Effects None known

SECTION 13: Disposal considerations

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Disposal Methods	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not reuse container.
Waste codes	Waste codes should be assigned by the user based on the application for which the product was used

Aluminum oxide**WGK Classification (AwSV)** 1346 WGK: nwg

SECTION 14: Transport information

Mode of Transportation (Road, Water, Air, Rail)

TDG -Canada	Not regulated
DOT	Not regulated
ADR	Not regulated
RID	Not regulated
ADN	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated
ICAO	Not regulated

14.1. UN number None**14.2. UN proper shipping name** None**14.3. Transport hazard class(es)** None**14.4. Packing group** None**14.5. Environmental hazards** No**14.6. Special precautions for user** Not applicable**14.7. Maritime transport in bulk according to IMO instruments**
Not applicable

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SECTION 15: Regulatory information

Global Inventories

Pure substance/mixture

Substance

Chemical Name	CAS NUMBER:	EC No	Australia (AIC)	Canada (DSL)	China (IECSC)	Japan	S. Korea (KECL)	Mexico	Thailand (TECI)	New Zealand	Taiwan	Philippines (PICCS)	TSCA: United States
Aluminum oxide	1344-28-1	215-691-6	Y	Y	Y	(1)-23 (ENCS)(IS HL)	KE-01012	Y	55-1-01518	Y	Y	Y	A

X / Y: Complies ; A: Active ; - / N: Exempt / Not Listed

US Federal Regulations

EPA

SARA 313

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

Aluminum oxide

SARA 313

1.0

CWA (Clean Water Act)

Not listed

CAA (Clean Air Act)

Not listed

U.S. State Right-to-Know Regulations

Chemical Name	CAS NUMBER:	California Proposition 65	Massachusetts	Minnesota	New Jersey	Pennsylvania
Aluminum oxide	1344-28-1	-	Y	Y	Y	Y

Y: Listed ; N: Not Listed

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product does not contain any Proposition 65 chemicals

CANADA

WHMIS

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

SECTION 16: Other information

Prepared by

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Reason for Version OSHA (Occupational Safety and Health Administration of the US Department of Labor).

Training Advice Do not handle until all safety precautions have been read and understood.

Abbreviations and acronyms

IARC (International Agency for Research on Cancer)
IATA (International Air Transport Association)
IMDG (International Maritime Dangerous Goods)
IUCLID (International Uniform Chemical Information Database)
WHMIS (Workplace Hazardous Materials Information System)
DOT (Department of Transportation)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
TWA (Time-Weighted Average)
CLP (The Classification, Labeling and Packaging of Substances and Mixtures Regulation (EC 1272/2008))
PPE (Personal Protection Equipment)
NIOSH (National Institute for Occupational Safety and Health)
TDG (Transport of Dangerous Goods) Canada
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
RQ (Reportable Quantity) (RQ/% in mixture)
STEL (Short Term Exposure Limit)
TLV® (Threshold Limit Value)
DNEL (Derived No Effect Level)
SVHC (Substances of Very High Concern)
BOD (Biochemical oxygen demand)
COD (Chemical oxygen demand)
ICAO (International Civil Aviation Organization)
IMDG (International Maritime Dangerous Goods)
ADR (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
RID (Agreement Concerning the International Carriage of Dangerous Goods by Rail)
SCBA (Self-Contained Breathing Apparatus) Positive Pressure
GHS (Globally Harmonized System)
SARA (Superfund Amendments and Reauthorization Act of 1986)
TSCA (Toxic Substances Control Act)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet