



# SAFETY DATA SHEET

## Martoxid® KMS-96 BO

MOL No. 2009-68 Standards for Classification and Labeling of Chemical Substances and Material Safety Data Sheet (MSDS)

Issue Date: 04/Jun/2019  
Print Date: 04/Jun/2019

Revision Number: 1.3  
Page 1 of 9

### Section 1: PRODUCT AND COMPANY IDENTIFICATION

**A. Product name** Martoxid® KMS-96 BO

**Chemical Name** Preparation : Al<sub>2</sub>O<sub>3</sub>

**Aluminum oxide**

**CAS Number** 1344-28-1  
**Weight-%** >=86

**B. Recommended use and Limitations on use**

**Recommended Use** Raw material for ceramics, refractory products, etc.

**Uses advised against** None known

**C. Supplier information**

**Company Name** MARTINSWERK GmbH  
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50127 Bergheim  
Germany  
Tel. : +49-2271-90.22.78  
Fax. : +49-2271-90.27.17

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**Contact person** CHEMTREC  
**Emergency phone number** +1 800 424 9300 International +1 703 527 3887

### Section 2: HAZARDS IDENTIFICATION

**A. Hazard category/Classification**

**Physical Hazards** Not classified

**Health Hazards** Not classified

**Environmental Hazards** Not classified

**B. Warning label items including precautionary statement**

**Label Elements**

## Martoxid® KMS-96 BO

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 2 of 9

Symbols/Pictograms None

Signal Words None

Hazard Statements None

**Precautionary statement****Prevention**

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

Response IF ON SKIN: Wash with plenty of soap and water

Storage Store away from incompatible materials

Disposal Dispose of contents/containers in accordance with local regulations

Additional Information: None.

**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)**

None known

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS Number	S. Korea (KECL)	Korean GHS Classification	TSCA: United States	Weight-%
Aluminum oxide	1344-28-1	KE-01012	Not classified	Y	>=86

**Legend**

X / Y: Complies , - / N: Not Listed , Exempt

**Section 4: FIRST AID MEASURES**

A. In case of eye contact Rinse with water. Get medical attention if irritation develops and persists.

B. In case of skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

C. In case of inhalation Move to fresh air. Call a physician if symptoms develop or persist.

D. In case of swallowing Rinse mouth. Get medical attention if symptoms occur.

E. Note to physician Treat symptomatically.

**Section 5: FIRE FIGHTING MEASURES**

## Martoxid® KMS-96 BO

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 3 of 9

**A. Suitable (and unsuitable) extinguishing media**

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	None known

**B. Specific hazards arising from the chemical (example: hazardous combustion products)**

**Explosion hazard:** None known

**C. Specific methods of fire-fighting**

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In the event of fire and/or explosion do not breathe fumes. Move container from fire area if it can be done without risk.

## Section 6: SPILLAGE, ACCIDENTAL RELEASE MEASURES

**A. Personal precautions, protective equipment and emergency measures** Ensure adequate ventilation. Avoid dust formation. See section 8 for more information.

**B. Environmental precautions** Not considered to be harmful to aquatic life. Avoid discharge into drains, water courses or onto the ground.

**C. Methods and materials for containment and cleaning up** Vacuum or sweep material and place in a disposal container.

## Section 7: HANDLING AND STORAGE

**A. Precautions for safe handling**

In case of exposure to environments exceeding the occupational exposure limit, wear a respirator in compliance with national legislation.

**B. Conditions for safe storage (including any incompatibilities)**

Keep container tightly closed in a dry and well-ventilated place

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**A. Exposure limit values, biological limit values, etc****Aluminum oxide**

Korea	TWA: 10 mg/m <sup>3</sup>
ACGIH	TWA: 10 mg/m <sup>3</sup>
ACGIH TLV	TWA: 1 mg/m <sup>3</sup> respirable fraction
OSHA	TWA: 15 mg/m <sup>3</sup> total dust
	TWA: 5 mg/m <sup>3</sup> respirable fraction
	(vacated) TWA: 10 mg/m <sup>3</sup> total dust
	(vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 4 of 9

**B. Engineering Controls.  
Engineering Measures**

Do not handle until all safety precautions have been read and understood  
 Ensure adequate ventilation, especially in confined areas  
 Provide a good standard of controlled ventilation (10 to 15 air changes per hour)  
 Use exhaust ventilation to keep airborne concentrations below exposure limits  
 In case of insufficient ventilation, wear suitable respiratory equipment

**C. Personal protective equipment**

- Eye protection
- Hand protection
- Body protection

If contact is likely, safety glasses with side shields are recommended.  
 For prolonged or repeated skin contact use suitable protective gloves.  
 Wear suitable protective clothing.

**Hygiene Measures**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Solid Powder
<b>Color</b>	White (Al2O3)
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH:</b>	+/- 9 (10 % / H2O)
<b>Melting point / Freezing point</b>	2000 °C (3632 °F) (1013 hPa)
<b>Initial boiling point and boiling range</b>	2980 °C (5396 °F) (1013 hPa)
<b>Flash Point:</b>	Not applicable Product/Substance is inorganic Solid
<b>Evaporation Rate</b>	Not applicable Melting Point : > 300°C
<b>Flammability (solid, gas)</b>	No information available
<b>Upper flammability limit:</b>	No data available
<b>Lower flammability limit:</b>	No data available
<b>Vapor Pressure</b>	1 hPa (2158 °C)
<b>Vapor Density</b>	Not applicable Melting Point : > 300°C
<b>Relative Density</b>	+/- 3.7 - 3.9
<b>Water Solubility</b>	Insoluble
<b>Solubility in other solvents</b>	No information available Not applicable : Product/Substance is inorganic No information available
<b>Kinematic viscosity</b>	No data available.
<b>Dynamic viscosity</b>	Not applicable. Solid.
<b>Explosive Properties</b>	None
<b>Oxidizing Properties</b>	None No data available

**Section 10: STABILITY AND REACTIVITY**

## Martoxid® KMS-96 BO

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 5 of 9

**A. Stability and hazardous reaction potential**

<b>Stability</b>	Stable under normal conditions
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<b>Hazardous reaction potential</b>	None known
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**B. Conditions to avoid (e.g. static discharge, shock or Vibration, etc)** Avoid creating dust. Incompatible materials.

**C. Incompatible materials** Strong oxidizing agents

**D. Hazardous decomposition products** No hazardous decomposition products are known.

<b>Section 11: TOXICOLOGICAL INFORMATION</b>
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**A. Information on likely routes of exposure**

- |                |  |
|----------------|--|
| • <b>Mouth</b> | Not an expected route of exposure                            |
| • <b>Eyes</b>  | Dust contact with the eyes can lead to mechanical irritation |
| • <b>Skin</b>  | Prolonged skin contact may cause temporary irritation.       |

**B. Information on health hazards****Aluminum oxide**

<b>Serious eye damage/eye irritation</b>	Non-irritant : Rabbit
<b>Skin Corrosion/Irritation</b>	Non-irritant : Rabbit
<b>Mutagenicity</b>	in vitro in vivo Based on available data, the classification criteria are not met
<b>Reproductive Effects</b>	No indication of effects on fertility. No indication of effects on developmental toxicity.
<b>Target Organ Effects</b>	Lungs
<b>Specific target organ toxicity - Single exposure</b>	No information available
<b>Specific target organ toxicity - Repeated exposure</b>	Repeated dose toxicity Inhalation 28-d Rat NOAEL (No observed adverse effect level) 70 mg(Al)/m <sup>3</sup> Repeated dose toxicity 1- Year Rat NOAEL (No observed adverse effect level) >=30 mg Al/kg bw

**Acute Toxicity**

Mixture
Al <sub>2</sub> O <sub>3</sub>
Repeated dose toxicity Inhalation 28-d Rat NOAEL (No observed adverse effect level) 70 mg(Al)/m <sup>3</sup> . Target Organs Lungs Respiratory system
Repeated dose toxicity 1- Year Oral Rat NOAEL (No observed adverse effect level) >=30 mg Al/kg bw

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 6 of 9

<b>Respiratory Sensitization</b>	Based on available data, the classification criteria are not met
<b>Serious eye damage/eye irritation</b>	Non-irritant : Rabbit
<b>Skin Corrosion/Irritation</b>	Non-irritant : Rabbit
<b>Mutagenicity</b>	Based on available data, the classification criteria are not met
<b>Reproductive Effects</b>	Based on available data, the classification criteria are not met.
<b>Reproductive Toxicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.
<b>Target Organ Effects</b>	Lungs.
<b>Specific target organ toxicity - Single exposure</b>	No information available.
<b>Specific target organ toxicity - Repeated exposure</b>	No information available.
<b>Mixture versus substance information</b>	Mixture.

## Section 12: ECOLOGICAL INFORMATION

### A. Ecotoxicity

**Hazardous to the aquatic environment, acute hazard** Not classified  
Avoid runoff to waterways and sewers

**Hazardous to the aquatic environment, long-term hazard** Not classified  
Avoid runoff to waterways and sewers

**B. Persistence/degradability** No data available

**C. Bioaccumulative potential** No data available

**D. Mobility in soil** No data available

**E. Other adverse effects** No data available

## Section 13: DISPOSAL CONSIDERATIONS

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 7 of 9

**A. Method of disposal**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.

**B. Disposal considerations (including disposal of contaminated containers or packaging)** Disposal should be in accordance with applicable regional, national and local laws and regulations

## Section 14: TRANSPORT INFORMATION

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

ADR	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. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not applicable

## Section 15: REGULATORY INFORMATION

**National Regulations****Aluminum oxide**

CAS Number	1344-28-1
Weight-%	>=86
Korean GHS Classification	Not classified
Toxic Release Inventory Chemicals - Group 1	Not applicable
Toxic Release Inventory Chemicals - Group 2	>=1.0%

Other domestic and foreign regulations

## Martoxid® KMS-96 BO

Issue Date: 04/Jun/2019

Print Date: 04/Jun/2019

Revision Number: 1.3

Page 8 of 9

## Global Inventories

Chemical Name	CAS Number	EC No	REACH registration number	Australia (AICS)	Canada (DSL)	China (IECSC)	Japan	S. Korea (KECL)	Mexico	New Zealand	Philippines (PICCS)	Taiwan	TSCA: United States
Aluminum oxide	1344-28-1	215-691-6	01-211952 9248-35-x xxx  01-211952 9248-35-0 017	Y	Y	Y	(1)-23 (ENCS)(ISHL)	KE-01012	Y	Y	Y	Y	Y

## Legend

X / Y: Complies , - / N: Not Listed , Exempt

## Section 16: OTHER INFORMATION

## A. Source of Information

## Abbreviations and acronyms

Land transport (ADR/RID)  
 Biochemical oxygen demand (BOD)  
 Chemical oxygen demand (COD)  
 Derived No Effect Level (DNEL)  
 Predicted No Effect Concentration (PNEC)  
 DOT (Department of Transportation)  
 ICAO (air)  
 International Air Transport Association (IATA)  
 International Agency for Research on Cancer (IARC)  
 International Maritime Dangerous Goods (IMDG)  
 PPE - Personal Protection Equipment  
 Positive Pressure Self-Contained Breathing Apparatus (SCBA)  
 STEL - Short Term Exposure Limit  
 TLV® - Threshold Limit Value  
 TWA - Time-Weighted Average  
 CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)  
 NIOSH - National Institute for Occupational Safety and Health  
 EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification  
 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)  
 TDG (Transport of Dangerous Goods) Canada  
 Workplace Hazardous Materials Information System (WHMIS) status and classification

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C. Number of revisions and Date 1.3  
of most recent revision

## D. Other

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# Safety Data Sheet

Martoxid® KMS-96 BO

**Issue Date:** 04/Jun/2019

**Print Date:** 04/Jun/2019

**Revision Number:** 1.3

**Page 9 of 9**

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**End of Safety Data Sheet**