

**Martoxid® KMS-94**

Prepared in accordance with GB/T 16483-2008, GB/TGB/T 24774-2009, GB 13690 – 2009, GB/T 17519–2013
Globally Harmonized System (GHS)

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Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|-------------------------------|---|
| Product Name: | Martoxid® KMS-94 |
| Chemical Name | Preparation : Al ₂ O ₃ |
| Pure substance/mixture | Mixture |
| <u>Aluminum oxide</u> | |
| CAS Number | 1344-28-1 |
| Weight-% | >=86 |
| Recommended Use | Abrasive Catalyst Adsorbent(s) Chemical industry (raw material for the production of other aluminium compounds), etc. |
| Company: | MARTINSWERK GmbH Kölner Strasse 110 50127 Bergheim Germany Tel. : +49-2271-90.22.78 Fax. : +49-2271-90.27.17 |
| Emergency Telephone | CHEMTREC: 1 800 424 9300 or International +1 703 527 3887 |
| E-mail | hubermaterials@huber.com |
| Internet | www.hubermaterials.com |

Section 2: HAZARDS IDENTIFICATION

| | |
|-----------------------------|----------------|
| GHS Classification | Not classified |
| Physical Hazard | Not classified |
| Health Hazard | Not classified |
| Environmental Hazard | Not classified |
| Label Elements | |
| Symbols/Pictograms | None |
| Signal Word | None |

Precautionary Statements

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| Prevention | Avoid release to the environment Observe good industrial hygiene practices. Avoid breathing dust. Use mechanical ventilation (dilution and local exhaust) to control exposure |
| 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 |
| Spills and Leaks | Collect spillage |
| Storage | Store in a dry place |
| Disposal | Dispose in accordance with local, state and national regulations |
| Additional Information: | None. |

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture Mixture

| Chemical Name | CAS Number | China (IECSC) | China classification | TSCA: United States | REACH registration number | Weight-% |
|----------------|------------|---------------|----------------------|---------------------|--|----------|
| Aluminum oxide | 1344-28-1 | Y | Not classified | Y | 01-2119529248-35-xxxx 01-2119529248-35-0017 | >=86 |

Section 4: FIRST AID MEASURES

| | |
|-----------------------|--|
| General Advice | In case of doubt or when symptoms persist, seek medical attention. |
| Eye Contact | Hold eyelids apart and flush eyes with a steady, gentle stream of water for several minutes. |
| Skin Contact | Wash skin with soap and water |
| Inhalation | IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing |
| Ingestion | Rinse mouth with water. Do not induce vomiting. |

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Notes to Physician Treat symptomatically

Personal Protective Equipment For First Aid Responders Wear suitable protective clothing
IF exposed or concerned: Get medical advice/attention

Expected acute symptoms and delayed symptoms None known

Section 5: FIRE FIGHTING MEASURES

Flammable Properties None known

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

Unsuitable extinguishing media: None known

Specific Hazards Arising from the Chemical None known

Unusual fire & explosion hazards: None

Protective measures: Use protective equipment that is appropriate for surrounding materials.

Protective Equipment and Precautions for Firefighters Wear self-contained breathing apparatus and protective suit

Section 6: SPILLAGE, ACCIDENTAL RELEASE MEASURES

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

Environmental Precautions Avoid runoff to waterways and sewers

Methods for cleaning up Pick up mechanically and / or by rinsing with water.
Avoid dry sweeping and use a sprinkler system or exhaust ventilation to prevent dust formation.

Other Information: None known

Section 7: HANDLING AND STORAGE

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

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

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits Provide adequate ventilation as well as local exhaust at critical locations

Aluminum oxide

| | |
|-----------|--|
| China | TWA: 4 mg/m ³ total dust |
| China | STEL: 8 mg/m ³ total dust |
| ACGIH | TWA: 10 mg/m ³ |
| ACGIH TLV | TWA: 1 mg/m ³ respirable fraction |
| NIOSH | Not established |
| OSHA | 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 |

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

Personal Protective Equipment

| | |
|---------------------------------|--|
| Eye/Face Protection | Wear safety goggles with side protection |
| Skin and Body Protection | Wear suitable protective clothing |
| Hand Protection | Impervious gloves |
| Respiratory Protection | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. |

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice Wash hands and face before breaks and immediately after handling the product.

Environmental Exposure Controls Dispose of in accordance with local regulations

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

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|--|---|
| Physical State | Solid Powder |
| Color | White (Al ₂ O ₃) |
| Odor | Odorless |
| Odor Threshold | No information available |
| pH: | +/- 9 (10 % / H ₂ O) |
| Melting point / Freezing point | 2000 °C (3632 °F) (1013 hPa) |
| Initial boiling point and boiling range | 2980 °C (5396 °F) (1013 hPa) |

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| Flash Point: | Not applicable. Product/Substance is inorganic. Solid. |
| Evaporation Rate | Not applicable Melting Point : > 300°C |
| Flammability (solid, gas) | No information available |
| Upper flammability limit: | |
| Lower flammability limit: | |
| Vapor Pressure | 1 hPa (2158 °C) |
| Vapor Density | Not applicable |
| | Melting Point : > 300°C |
| Relative Density | +/- 3.7 - 3.9 |
| Water Solubility | Insoluble |
| Solubility in other solvents | No information available |
| Partition coefficient | Not applicable : Product/Substance is inorganic |
| Autoignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Dynamic viscosity | Not applicable Solid |
| Explosive Properties | None |
| Oxidizing Properties | None |

No data available

Section 10: STABILITY AND REACTIVITY

| | |
|---|--------------------------------|
| Stability | Stable under normal conditions |
| Conditions to avoid: | None known |
| Incompatible materials | Strong acids |
| Hazardous decomposition products | None under normal processing |
| Hazardous Reactions | None under normal processing |
| Hazardous polymerization: | None under normal processing |

Section 11: TOXICOLOGICAL INFORMATION

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

Product Information

Information on Likely Routes of Exposure

Eyes Avoid contact with eyes
 Dust contact with the eyes can lead to mechanical irritation

Skin Avoid prolonged or repeated contact with skin
 Contact with dust can cause mechanical irritation or drying of the skin

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|--------------------------|--|
| Inhalation | Do not breathe dust |
| Ingestion | Ingestion is not a likely route of exposure |
| Aspiration hazard | Not an expected route of exposure. |
| Symptoms | Low hazard for usual industrial or commercial handling |

11.1. Information on toxicological effects

Aluminum oxide

| | |
|---|---|
| Serious eye damage/eye irritation | Non-irritant : Rabbit |
| Skin Corrosion/Irritation | Non-irritant : Rabbit |
| Mutagenicity | in vitro in vivo 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. |
| Target Organ Effects | Lungs |
| Specific target organ toxicity - Single exposure | No information available |
| Specific target organ toxicity - Repeated exposure | Repeated dose toxicity Inhalation 28-d Rat NOAEL (No observed adverse effect level) 70 mg(Al)/m ³ Repeated dose toxicity 1- Year Rat NOAEL (No observed adverse effect level) >=30 mg Al/kg bw |
| Acute Toxicity | Mixture Al ₂ O ₃ Repeated dose toxicity Inhalation 28-d Rat NOAEL (No observed adverse effect level) 70 mg(Al)/m ³ . Target Organs Lungs Respiratory system Repeated dose toxicity 1- Year Oral Rat NOAEL (No observed adverse effect level) >=30 mg Al/kg bw |
| Serious eye damage/eye irritation | Non-irritant : Rabbit |
| Respiratory Sensitization | Based on available data, the classification criteria are not met |
| Skin Corrosion/Irritation | Non-irritant : Rabbit |
| Mutagenicity | Based on available data, the classification criteria are not met. |
| Reproductive Effects | Based on available data, the classification criteria are not met. |
| 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. |
| Target Organ Effects | Lungs. |
| Specific target organ toxicity - | No information available. |

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Single exposure

Specific target organ toxicity - Repeated exposure No information available.

Mixture versus substance information Mixture.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Very low solubility. Not considered to be harmful to aquatic life.

Persistence/Degradability: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative Potential Not likely to bioaccumulate.

Partition coefficient Not available

Bioconcentration factor (BCF) No data available.

Mobility in soil None.

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

Other Adverse Effects None known

Section 13: DISPOSAL CONSIDERATIONS

Waste from Residues/Unused Products Dispose of in accordance with local regulations

Contaminated Packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14: TRANSPORT INFORMATION**Mode of Transportation (Road, Water, Air, Rail)**

DOT Not regulated
ADR Not regulated
IATA Not regulated
IMDG/IMO Not regulated
ICAO Not regulated

14.1. UN number None

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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

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

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 | 01-211952924-8-35-xxxx 01-211952924-8-35-0017 | Y | Y | Y | (1)-23 (ENCS)(IS HL) | KE-01012 | Y | Y | Y | Y | Y |

Legend

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

Section 16: OTHER INFORMATION

| | |
|-----------------------------------|---|
| Prepared by | Huber Engineered Materials Global Regulatory Affairs email: regulatory.affairs@huber.com |
| Reason for Revision | GB/T 16483-2008 GB/T 24774-2009 GB 13690 – 2009 GB/T 17519–2013 |
| GHS Classification | Not classified |
| Physical Hazard | Not classified |
| Health Hazard | Not classified |
| Environmental Hazard | Not classified |
| Label Elements | |
| Symbols/Pictograms | None |
| Signal Word | None |
| 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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End of Safety Data Sheet