



# MATERIAL SAFETY DATA SHEET

**MATERION**

## 1. Chemical product and company identification

**A. Product name** Aluminum Oxide

### Other means of identification

**SDS number** G31  
**CAS number** 1302-74-5

## B. Recommended use and Limitations on use

**Recommended use** Manufacture of computer, electronic and optical products, electrical equipment  
Scientific research and development  
Other: Manufacture of medical and defense equipment

**Limitations on use** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

## C. Supplier information

**Company name** Materion Electronic Materials  
**Address** 6070 Parkland Boulevard  
Mayfield Heights Ohio 44124  
United States

**Telephone** 1.216.383.4019  
**Email** Materion-PS@materion.com  
**Contact person** Product Stewardship Director

**Emergency telephone number** See Section 16.

**Importer**  
**Company name** See above.  
**Contact person** Product Stewardship Director

## 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

- **Pictogram** None.
- **Signal word** None.
- **Hazard statement**
  - H319 Causes serious eye irritation.
  - H335 May cause respiratory irritation.
  - H372 Causes damage to organs through prolonged or repeated exposure.

### • Precautionary statement

**Prevention** Observe good industrial hygiene practices.

### Response

Wash hands after handling.  
P308 + P313 If exposed or concerned: Get medical advice/attention.

### Storage

P405 Store locked up.

### Disposal

Dispose of waste and residues in accordance with local authority requirements.

**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

**Supplemental information** For further information, please contact the Product Stewardship Department at +1.216.383.4019.

### 3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Aluminum Oxide		1302-74-5	KE-05-0367	100

### 4. First aid measures

**A. In case of eye contact** Do not rub eyes. 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.

**Most important symptoms/effects, acute and delayed** None known.

**General advice** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

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

**Suitable extinguishing media** Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media** None known.

**B. Specific hazards arising from the chemical (example: hazardous combustion products)** None known.

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

**Special protective equipment for firefighters** Wear suitable protective equipment.

**Special fire fighting procedures** Use water spray to cool unopened containers.

**General fire hazards** No unusual fire or explosion hazards noted.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

### 6. Accidental release measures

**A. Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up.

**B. Environmental precautions** Avoid discharge into drains, water courses or onto the ground.

**C. Methods and materials for containment and cleaning up**

Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. The product is insoluble in water.

## 7. Handling and storage

- A. Precautions for safe handling** Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Practice good housekeeping.
- B. Conditions for safe storage (including any incompatibilities)** Keep locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).

## 8. Exposure controls/personal protection

### A. Exposure limit values, biological limit values, etc

Korea. Exposure Limits for Chemicals and Physical Agents, Occupational Safety and Health Act "K-OSHA"  
Article 106

Material	Type	Value
Aluminum Oxide (CAS 1302-74-5)	TWA	10 mg/m3

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**B. Appropriate engineering controls** Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

### C. Personal protective equipment

- **Respiratory protection** In case of inadequate ventilation, use respiratory protection.
- **Eye protection** Not available.
- **Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.
- **Body protection** 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.

## 9. Physical and chemical properties

### A. Appearance

<b>Physical state</b>	Solid.
<b>Form</b>	Solid
<b>Color</b>	White.

**B. Odor** None.

**C. Odor threshold** Not applicable.

**D. pH** Not applicable.

### E. Melting point/freezing point

**Freezing point** Not applicable.

**F. Boiling point, initial boiling point, and boiling range** Not applicable.

**G. Flash point** Not applicable.

**H. Evaporation rate** Not applicable.

**I. Flammability (solid, gas)** None known.

### J. Upper/lower limit on flammability or explosive limits

**Explosive limit - lower (%)** Not applicable.

**Explosive limit - lower (%) temperature** Not applicable.

Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
K. Vapor pressure	Not applicable.
L. Solubility	
Solubility (water)	Insoluble
M. Vapor density	Not applicable.
N. Specific gravity	Not applicable.
O. n-octanol/water partition coefficient	Not applicable.
P. Auto-ignition temperature	Not applicable.
Q. Decomposition temperature	Not applicable.
R. Viscosity	Not applicable.
S. Molecular weight	Not available.
Other data	
Density	Not applicable.
Explosive properties	Not explosive.
Molecular formula	Al <sub>2</sub> O <sub>3</sub>
Oxidizing properties	Not oxidizing.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

### A. Stability and hazardous reaction potential

**Stability** Material is stable under normal conditions.  
**Hazardous reaction potential** No dangerous reaction known under conditions of normal use.

**B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)** Contact with incompatible materials.

**C. Incompatible materials** Acids. Chlorine.

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

## 11. Toxicological information

### A. Information on likely routes of exposure

- **Respiratory organs** Dust may irritate respiratory system. Prolonged inhalation may be harmful. Not likely, due to the form of the product.
- **Skin** Dust or powder may irritate the skin.
- **Eyes** Not relevant, due to the form of the product. Dust may irritate the eyes.
- **Mouth** Expected to be a low ingestion hazard.

### B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Not known.
- **Corrosivity or irritation to the skin** Not classified.
- **Serious eye damage/eye irritation** May cause eye irritation.
- **Respiratory sensitization** Not a respiratory sensitizer.

• Skin sensitization	Not a skin sensitizer.
• Carcinogenic properties /Carcinogenicity	Not classified.
• Mutagenic properties /Mutagenicity	Not classified.
• Reproductive toxicity	Not available.
• Specific target organ toxicity - single exposure	Respiratory tract irritation.
• Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
• Aspiration hazard	Not an aspiration hazard.

## 12. Ecological information

<b>A. Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>Hazardous to the aquatic environment, acute hazard</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>B. Persistence/degradability</b>	No data is available on the degradability of this substance.
<b>C. Bioaccumulative potential</b>	No data available.
<b>D. Mobility in soil</b>	The product is immiscible with water and will spread on the water surface.
<b>E. Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>A. Method of disposal</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
<b>B. Disposal considerations (including disposal of contaminated containers or packaging)</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>Waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

## 14. Transport information

### National regulations

#### KSSTDG

<b>A. UN number</b>	Not regulated as dangerous goods.
<b>B. UN proper shipping name</b>	Not regulated as dangerous goods.
<b>C. Transport hazard class(es)</b>	
<b>Class</b>	Not assigned.
<b>Subsidiary hazard</b>	-
<b>D. Packing group</b>	-
<b>E. Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	Not assigned.
<b>F. Special precautions for user</b>	Not assigned.

### International regulations

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

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

## 15. Regulatory information

### A. Restrictions under the Industrial Safety and Health Law

#### Harmful Substances Prohibited from Manufacturing

Not regulated.

#### Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

#### Controlled Hazardous Substances

Not regulated.

#### Harmful Substances Requiring Special Medical Examination

Not regulated.

#### Workplace Environmental Monitoring Harmful Materials

Not regulated.

#### Occupational Exposure Limit

Aluminum Oxide (CAS 1302-74-5)

### B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

#### Accidental Release Prevention Substances

Not regulated.

#### Act on the Registration and Evaluation of Chemicals

##### Banned Toxic Chemicals

Not regulated.

##### Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

##### Restricted Chemical Substances

Not regulated.

##### Toxic Chemicals

Not regulated.

### C. Restrictions under the Dangerous Substance Safety Management Act

### D. Restrictions under the Wastes Control Act

#### Halogenated Materials in Waste Organic Solvents

Not regulated.

#### Hazardous Substances

Not regulated.

### E. Restrictions under other foreign or domestic laws

#### Clean Air Conservation Act

##### Air Pollutants

Aluminum Oxide (CAS 1302-74-5)

##### Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended

Not listed.

##### Specific Air Pollutants

Not regulated.

### Further information

This material safety data sheet was prepared in accordance with Ministry of Employment and Labor Notice No 2020-130.

### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

<b>A. Source of information</b>	ACGIH EPA: AQUIRE database IARC Monographs. Overall Evaluation of Carcinogenicity Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1) Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended) NLM: Hazardous Substances Data Base Korea. GHS Labeling Requirements. Standards for Classification and Labeling of Chemical Substances and Material Safety Data Sheets (MSDS), as amended Korea. KOSHA GHS Classifications List (Korea Occupational Safety & Health Agency) Korea. NEMA GHS Classification List (National Emergency Management Agency GHS Guidance for Classification and Labeling for Dangerous Goods) Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002), as amended
<b>B. Issue date</b>	10-18-2019
<b>C. Number of revisions and date of most recent revision</b>	12-20-2024 (03 revision)
<b>D. Other</b>	Revised information in Section 16.
<b>Further information</b>	Transportation Emergency Call Chemtrec at: US: 800.424.9300 International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402 Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059 South Korea Toll-free Number – 080-880-0468
<b>Disclaimer</b>	This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.
<b>Revision information</b>	This document has undergone significant changes and should be reviewed in its entirety.