



# PRODUCT INFORMATION SHEET

**MATERION**

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

### 1.1. Product identifier

<b>Name of the substance</b>	Aluminium oxide
<b>Identification number</b>	215-691-6 (EC number)
<b>Registration number</b>	-
<b>Document number</b>	G31
<b>Synonyms</b>	None.
<b>Issue date</b>	07-February-2019
<b>Version number</b>	01

### 1.3. Details of the supplier of the product information sheet

#### Supplier

<b>Company name</b>	Materion Advanced Materials Germany GmbH
<b>Address</b>	Borsigstrasse 10 63755 Alzenau DE
<b>Division</b>	
<b>Telephone</b>	49.60.23.91.82.0
<b>e-mail</b>	Materion.Germany@materion.com
<b>Contact person</b>	Hermann Schmiing

### 1.4. Emergency telephone number

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

<b>Identified uses</b>	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment
<b>Uses advised against</b>	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

<b>Company name</b>	Materion Advanced Materials Germany GmbH
<b>Address</b>	Borsigstrasse 10 63755 Alzenau DE
<b>Division</b>	
<b>Telephone</b>	49.60.23.91.82.0
<b>e-mail</b>	Materion.Germany@materion.com
<b>Contact person</b>	Hermann Schmiing

### 1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

#### Hazard summary

The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles and/or powder), a potential health hazard could exist and risk management measures must be taken to minimize risk.

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

<b>Contains:</b>	Aluminium oxide
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<b>Hazard pictograms</b>	None.
<b>Signal word</b>	None.
<b>Hazard statements</b>	The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

#### Precautionary statements

<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash hands after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of waste and residues in accordance with local authority requirements.

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

**2.3. Other hazards** Not a PBT or vPvB substance or mixture.

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

##### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Aluminium oxide	100	1344-28-1 215-691-6	-	-	
<b>Classification:</b>	-				

### SECTION 4: First aid measures

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

#### 4.1. Description of first aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Get medical attention if symptoms occur.

**4.2. Most important symptoms and effects, both acute and delayed** Dusts may irritate the respiratory tract, skin and eyes.

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

### SECTION 5: Firefighting measures

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

#### 5.1. 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.

**5.2. Special hazards arising from the substance or mixture** None known.

#### 5.3. Advice for firefighters

<b>Special protective equipment for firefighters</b>	Wear suitable protective equipment.
<b>Special firefighting procedures</b>	Use water spray to cool unopened containers.

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

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	Keep unnecessary personnel away. For personal protection, see section 8 of the PIS.
<b>For emergency responders</b>	Use personal protection recommended in Section 8 of the PIS.

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

**6.3. Methods and material for containment and cleaning up** Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the PIS.

**6.4. Reference to other sections** For personal protection, see section 8 of the PIS. For waste disposal, see section 13 of the PIS.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Avoid prolonged exposure. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities** Keep locked up.

**7.3. Specific end use(s)** Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	MAK	5 mg/m <sup>3</sup>	Respirable fraction.
		5 mg/m <sup>3</sup>	Respirable fume.
		10 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	20 mg/m <sup>3</sup>	Inhalable fraction.
		10 mg/m <sup>3</sup>	Respirable fume.
		10 mg/m <sup>3</sup>	Respirable fraction.

##### Belgium. Exposure Limit Values.

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.

##### Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	3,5 mg/m <sup>3</sup>	Respirable fraction.

##### Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	MAC	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.

##### Czech Republic. OELs. Government Decree 361

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	0,1 mg/m <sup>3</sup>	Respirable dust.

##### Denmark. Exposure Limit Values

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TLV	5 mg/m <sup>3</sup>	Total
		2 mg/m <sup>3</sup>	Respirable.

**Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984**

Material	Type	Value
Aluminium oxide (CAS 1344-28-1)	VME	10 mg/m <sup>3</sup>

**Regulatory status:** Indicative limit (VL)

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Inhalable fraction.
		1,5 mg/m <sup>3</sup>	Respirable fraction.

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	AGW	10 mg/m <sup>3</sup>	Inhalable fraction.
		1,25 mg/m <sup>3</sup>	Respirable fraction.

**Greece. OELs (Decree No. 90/1999, as amended)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	5 mg/m <sup>3</sup>	Inhalable
		10 mg/m <sup>3</sup>	Respirable.

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	6 mg/m <sup>3</sup>	Respirable.

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits**

Material	Type	Value
Aluminium oxide (CAS 1344-28-1)	TWA	10 mg/m <sup>3</sup>

**Ireland. Occupational Exposure Limits**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total inhalable dust.

**Italy. Occupational Exposure Limits**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.

**Latvia. OELs. Occupational exposure limit values of chemical substances in work environment**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	6 mg/m <sup>3</sup>	Decomposition aerosol.
		4 mg/m <sup>3</sup>	

**Norway. Administrative Norms for Contaminants in the Workplace**

Material	Type	Value
Aluminium oxide (CAS 1344-28-1)	TLV	10 mg/m <sup>3</sup>

**Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	2,5 mg/m <sup>3</sup>	Inhalable fraction.
		1,2 mg/m <sup>3</sup>	Respirable fraction.

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.

**Romania. OELs. Protection of workers from exposure to chemical agents at the workplace**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	STEL	5 mg/m <sup>3</sup>	Aerosol
	TWA	2 mg/m <sup>3</sup>	Aerosol

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Inhalable fraction.
		1,5 mg/m <sup>3</sup>	Respirable fraction.
		0,1 mg/m <sup>3</sup>	

**Spain. Occupational Exposure Limits**

Material	Type	Value
Aluminium oxide (CAS 1344-28-1)	TWA	10 mg/m <sup>3</sup>

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	5 mg/m <sup>3</sup>	Total dust.
		2 mg/m <sup>3</sup>	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	STEL	24 mg/m <sup>3</sup>	Respirable dust and/or fume.
	TWA	3 mg/m <sup>3</sup>	Respirable dust.
		3 mg/m <sup>3</sup>	Respirable dust and/or fume.

**UK. EH40 Workplace Exposure Limits (WELs)**

Material	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.

**Biological limit values**

**Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)**

Material	Value	Determinant	Specimen	Sampling Time
Aluminium oxide (CAS 1344-28-1)	60 µg/g	Aluminium	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

## 8.2. Exposure controls

### 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.

### Individual protection measures, such as personal protective equipment

#### General information

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

#### Eye/face protection

Wear safety glasses with side shields (or goggles).

#### Skin protection

##### - Hand protection

Wear gloves to prevent metal cuts and skin abrasions during handling.

##### - Other

Wear suitable protective clothing.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### 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.

### Environmental exposure 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.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

##### Physical state

Solid.

##### Form

Powder.

##### Colour

White.

#### Odour

None.

#### Odour threshold

Not applicable.

#### pH

Not applicable.

#### Melting point/freezing point

2000 °C (3632 °F) / Not applicable.

#### Initial boiling point and boiling range

Not applicable.

#### Flash point

Not applicable.

#### Evaporation rate

Not applicable.

#### Flammability (solid, gas)

None known.

#### Upper/lower 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.

#### Vapour pressure

Not applicable.

#### Vapour density

Not applicable.

#### Relative density

Not applicable.

#### Solubility(ies)

##### Solubility (water)

Insoluble

#### Partition coefficient (n-octanol/water)

Not applicable.

#### Auto-ignition temperature

Not applicable.

#### Decomposition temperature

Not applicable.

#### Viscosity

Not applicable.

#### Explosive properties

Not explosive.

<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Density</b>	4,00 g/cm <sup>3</sup> estimated at 20 °C
<b>Molecular formula</b>	Al <sub>2</sub> O <sub>3</sub>
<b>Molecular weight</b>	101,94 g/mol

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Acids. Chlorine.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

**General information** Occupational exposure to the substance or mixture may cause adverse effects.

### Information on likely routes of exposure

<b>Inhalation</b>	Not likely, due to the form of the product.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Not relevant, due to the form of the product.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

**Symptoms** None known.

### 11.1. Information on toxicological effects

<b>Acute toxicity</b>	None known.
<b>Skin corrosion/irritation</b>	Not classified.
<b>Serious eye damage/eye irritation</b>	None known.
<b>Respiratory sensitisation</b>	Not a respiratory sensitizer.
<b>Skin sensitisation</b>	Not a skin sensitiser.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Not classified.

#### Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Mixture versus substance information</b>	No information available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

<b>12.1. Toxicity</b>	Based on available data, the classification criteria are not met for hazardous to the aquatic environment.
<b>12.2. Persistence and degradability</b>	No data is available on the degradability of any ingredients in the mixture.
<b>12.3. Bioaccumulative potential</b>	No data available.
<b>Partition coefficient n-octanol/water (log K<sub>ow</sub>)</b>	Not available.

<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	No data available.
<b>12.5. Results of PBT and vPvB assessment</b>	Not a PBT or vPvB substance or mixture.
<b>12.6. 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.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated 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>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

14.1. - 14.6.: Not regulated as dangerous goods.

### RID

14.1. - 14.6.: Not regulated as dangerous goods.

### ADN

14.1. - 14.6.: Not regulated as dangerous goods.

### IATA

14.1. - 14.6.: Not regulated as dangerous goods.

### IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

## SECTION 15: Regulatory information

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

#### EU regulations

##### **Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

##### **Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

##### **Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

##### **Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

##### **Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

##### **Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

##### **Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Aluminium oxide (CAS 1344-28-1)

##### **Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

#### Authorisations

##### **Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

#### Restrictions on use



**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

**Other EU regulations**

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**

Not listed.

**Other regulations**

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

**National regulations**

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

**List of abbreviations**

Not available.

**References**

Not available.

**Information on evaluation method leading to the classification of mixture**

Not applicable.

**Revision information**

None.

**Training information**

Not available.

**Disclaimer**

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