

This safety data sheet was created pursuant to the requirements of:  
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Issuing Date 04-Aug-2016

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Revision Number 2

EGHS / English

## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Name** Aluminum Oxide Powder

**Product Code(s)** 40-6425-400-080, 40-6430-600-080, 40-6603-030-080, 40-6605-050-080,  
40-6609-095-080, 40-6612-125-080

**(M)SDS Number** 1339775\_E

**Chemical name**

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

**Recommended Use** Laboratory Use Only.

**Uses advised against** No information available.

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

**Manufacturer** ITW Test & Measurement GmbH

**Manufacturer Address** Boschstraße 10  
73734 Esslingen am Neckar / GERMANY  
www.buehler-met.de www.buehler.fr www.buehler.co.uk

**Phone number** +49 (0) 711 4904690-0

**E-mail Address** lab.eu@buehler.com

### 1.4. Emergency telephone number

Global Access Code: 334545  
Americas: +1 760 476 3962  
Middle East/Africa: +1 760 476 3959  
UK: +44 8 08 189 0979

Europe: +1 760 476 3961  
Asia Pacific: +1 760 476 3960

## Section 2: HAZARDS IDENTIFICATION

**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

**2.2. Label elements**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH210 - Safety data sheet available on request

**2.3. Other hazards**

No information available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substances**

Chemical name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Aluminum oxide	215-691-6	1344-28-1	90 - 100%	No data available	
Titanium dioxide	236-675-5	13463-67-7	0 - 10%	No data available	
Iron oxide	215-168-2	1309-37-1	0 - 10%	No data available	
Magnesium oxide	-	1309-48-4	< 0.5%	No data available	
Calcium oxide	-	1305-78-8	< 0.6%	No data available	

**Full text of H- and EUH-phrases: see section 16**

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Chemical name	CAS No	SVHC candidates
Aluminum oxide	1344-28-1	-
Titanium dioxide	13463-67-7	-
Iron oxide	1309-37-1	-
Magnesium oxide	1309-48-4	-
Calcium oxide	1305-78-8	-

### Section 4: FIRST AID MEASURES

**4.1. Description of first aid measures**

<b>Inhalation</b>	Remove to fresh air.
<b>Skin contact</b>	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water.

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

**Symptoms** No information available.

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

**Note to physicians** Treat symptomatically.

**Section 5: FIRE FIGHTING MEASURES****5.1. Extinguishing media**

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

**Unsuitable extinguishing media** No information available.

**5.2. Special hazards arising from the substance or mixture****Specific hazards arising from the chemical**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**5.3. Advice for firefighters****Special protective equipment for fire-fighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**Section 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Ensure adequate ventilation.

**For emergency responders** Use personal protection recommended in Section 8.

**6.2. Environmental precautions**

**Environmental precautions** Should not be released into the environment. See Section 12 for additional Ecological Information.

**6.3. Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

**6.4. Reference to other sections**

**Reference to other sections** See section 8 for more information. See section 13 for more information.

**Section 7: HANDLING AND STORAGE****7.1. Precautions for safe handling**

**Advice on safe handling** Ensure adequate ventilation.

**General Hygiene Considerations** Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Material Safety Data Sheet.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure Limits

Chemical name	EU	United Kingdom	France	Spain	Germany
Aluminum oxide 1344-28-1	-	STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-
Titanium dioxide 13463-67-7	-	STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-
Iron oxide 1309-37-1	-	STEL: 10 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	-
Magnesium oxide 1309-48-4	-	STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-
Calcium oxide 1305-78-8	-	STEL: 6 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>
Chemical name	Italy	Portugal	Netherlands	Finland	Denmark
Aluminum oxide 1344-28-1	-	TWA: 10 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup>	-	TWA: 5 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>
Titanium dioxide 13463-67-7	-	TWA: 10 mg/m <sup>3</sup>	-	-	TWA: 6 mg/m <sup>3</sup>
Iron oxide 1309-37-1	-	TWA: 5 mg/m <sup>3</sup>	-	TWA: 5 mg/m <sup>3</sup>	TWA: 3.5 mg/m <sup>3</sup>
Magnesium oxide 1309-48-4	-	TWA: 10 mg/m <sup>3</sup>	-	-	TWA: 6 mg/m <sup>3</sup>
Calcium oxide 1305-78-8	-	TWA: 2 mg/m <sup>3</sup>	-	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
Aluminum oxide 1344-28-1	STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	STEL: 24 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup> TWA: 1.2 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> STEL: 20 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup>

					STEL: 12 mg/m <sup>3</sup>
Titanium dioxide 13463-67-7	STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup>	STEL: 30 mg/m <sup>3</sup> TWA: 10.0 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup>
Iron oxide 1309-37-1	STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup>	STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup> STEL: 6 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup>
Magnesium oxide 1309-48-4	STEL 20 mg/m <sup>3</sup> STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> STEL: 20 mg/m <sup>3</sup>	TWA: 4 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup>
Calcium oxide 1305-78-8	STEL 4 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>	STEL: 2 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>	STEL: 6 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> STEL: 6 mg/m <sup>3</sup>

**Derived No Effect Level (DNEL)** No information available

**Predicted No Effect Concentration (PNEC)** No information available

**8.2. Exposure controls**

**Personal protective equipment**

**Eye/face protection** Tight sealing safety goggles.

**Skin and body protection** Wear suitable protective clothing.

**Environmental exposure controls** No information available.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

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

**Physical state** Powder(s)  
**Appearance** Gray  
**Odor** Odorless  
**Color** No information available  
**Odor Threshold** No information available

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	No data available	None known	
Melting / freezing point	>2000°C (>3632°F)	None known	
Boiling point / boiling range	>2900°C (>5252°F)	None known	
Flash Point	No data available	None known	
Evaporation Rate	No data available	None known	
Flammability (solid, gas)	No data available	None known	
Flammability Limit in Air	No data available	None known	
Upper flammability limit	No data available		
Lower flammability limit	No data available		

Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	3.9 g/cm <sup>3</sup>	None known
Water Solubility	Insoluble	
Solubility(ies)	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Viscosity	No data available	None known

**9.2. Other information**

Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	0%
Liquid Density	No information available
Bulk Density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

**Section 10: STABILITY AND REACTIVITY****10.1. Reactivity**

No data available.

**10.2. Chemical stability**

Stable under normal conditions.

Explosion Data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

**10.3. Possibility of hazardous reactions**

**Possibility of Hazardous Reactions**                      None under normal processing.

**10.4. Conditions to avoid**

None known.

**10.5. Incompatible materials**

No information available.

**10.6. Hazardous decomposition products**

None under normal use conditions.

**Section 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects****Information on likely routes of exposure**

**Product Information**

<b>Inhalation</b>	Specific test data for the substance or mixture is not available.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

**Information on toxicological effects**

**Symptoms** No information available.

**Numerical measures of toxicity****Acute Toxicity**

The following values are calculated based on chapter 3.1 of the GHS document

**ATEmix (oral)** 10,833.00 mg/kg

**Unknown acute toxicity**

- 99.5 % of the mixture consists of ingredient(s) of unknown toxicity
- 93.5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 99.5 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 99.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 99.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 99.5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum oxide	> 5000 mg/kg ( Rat )	-	-
Titanium dioxide	> 10000 mg/kg ( Rat )	-	-
Iron oxide	> 10000 mg/kg ( Rat )	-	-
Calcium oxide	= 500 mg/kg ( Rat )	-	-

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** No information available.

**Serious eye damage/eye irritation** No information available.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

**Reproductive Toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

## Section 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### **Ecotoxicity**

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Calcium oxide	-	96h LC50: = 1070 mg/L (Cyprinus carpio)	-	-

### 12.2. Persistence and degradability

**Persistence and Degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** No information available.

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** No information available.

Chemical name	PBT and vPvB assessment
Aluminum oxide	
Titanium dioxide	
Iron oxide	
Calcium oxide	

### 12.6. Other adverse effects

**Other adverse effects** No information available.

## Section 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** No information available.



<b>Section 14: TRANSPORT INFORMATION</b>
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<b><u>IMDG/IMO</u></b>	NOT REGULATED
<b>14.1 UN-No.</b>	Not Regulated
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Marine Pollutant</b>	Not applicable
<b>14.6 Special Provisions</b>	None
<b>14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code</b>	No information available

<b><u>RID</u></b>	NOT REGULATED
<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

<b><u>ADR</u></b>	NOT REGULATED
<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

<b><u>IATA</u></b>	NOT REGULATED
<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NON REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

<b>Section 14: TRANSPORT INFORMATION</b>
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<b><u>IMDG/IMO</u></b>	NOT REGULATED
<b>14.1 UN-No.</b>	Not Regulated
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Marine Pollutant</b>	Not applicable
<b>14.6 Special Provisions</b>	None
<b>14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code</b>	No information available

<b><u>RID</u></b>	NOT REGULATED
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<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

<b>ADR</b>	NOT REGULATED
<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NOT REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

<b>IATA</b>	NOT REGULATED
<b>14.1 UN-No.</b>	NOT REGULATED
<b>14.2 Proper Shipping Name</b>	NON REGULATED
<b>14.3 Hazard Class</b>	NOT REGULATED
<b>14.4 Packing Group</b>	NOT REGULATED
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	None

## Section 15: REGULATORY INFORMATION

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

#### National regulations

##### France

##### Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
Iron oxide 1309-37-1	RG 44, RG 44bis, RG 94 RG 44, RG 94	-

**Water hazard class (WGK)** Not dangerous

#### European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

#### **Authorizations and/or restrictions on use:**

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

#### **Persistent Organic Pollutants**

Not applicable.

#### **Ozone-depleting substances (ODS) regulation (EC) 1005/2009**

Not applicable.

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status.
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status.
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status.
<b>ENCS</b>	Contact supplier for inventory compliance status.
<b>IECSC</b>	Contact supplier for inventory compliance status.
<b>KECL</b>	Contact supplier for inventory compliance status.
<b>PICCS</b>	Contact supplier for inventory compliance status.
<b>AICS</b>	Contact supplier for inventory compliance status.

**Legend**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**15.2. Chemical safety assessment**

No information available.

**Section 16: OTHER INFORMATION****Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorization:

**Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	-	Skin designation

**Key literature references and sources for data**

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

**Issuing Date** 01-Mar-2017

**Revision Date** 13-Apr-2017

**This safety data sheet complies with the requirements of: Regulation (EC) No. 1907/2006.**

**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.



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**End of Safety Data Sheet**