

according to Regulation (EC) No. 1907/2006

Revision Date 02-May-2025

Revision Number 6

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

1.1. Product identifier

Product Description:	Aluminum oxide desiccant
Cat No. :	44018
CAS No	1344-28-1
Molecular Formula	AI2O3
REACH registration number	01-2119529248-35-0449

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH Erlenbachweg 2, 76870 Kandel, Germany Tel: +49 (0) 721 84007 280 Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG Neuhofstrasse 11, CH 4153 Reinach Tel: +41 (0) 56 618 41 11 https://www.fishersci.ch/ch/en/customer-helpsupport/forms/email-us.html

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland: Tox Info Suisse Emergency Number: **145 (24hr)** Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad) Chemtrec (24h) Toll-Free: 0800 564 402 Chemtrec Local: +41-43 508 20 11 (Zurich)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Aluminum oxide desiccant

Physical hazards

Based on available data, the classification criteria are not met

<u>Health hazards</u>

Based on available data, the classification criteria are not met

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

None required

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

This product does not contain any known or suspected endocrine disruptors

Section 3: Composition/information on ingredients

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Aluminum oxide (Al2O3)	1344-28-1	215-691-6	100	-

REACH registration number 01-2119529248-35-0449

Full text of Hazard Statements: see section 16

Section 4: First aid measures

4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.

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Aluminum oxide desiccant

Self-Protection of the First Aider No special precautions required.

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

None reasonably foreseeable.

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

Notes to Physician Treat symptomatically.

Section 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

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

Hazardous Combustion Products

None under normal use conditions.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

6.2. 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

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and storage

7.1. Precautions for safe handling

Aluminum oxide desiccant

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

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

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)	Storage Class/LGK 13
Switzerland - Storage of hazardous substances	Storage class - SC 11/13

Storage class - SC 11/13 https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

7.3. Specific end use(s)

Use in laboratories

Section 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Aluminum oxide		STEL: 30 mg/m ³ 15 min	TWA / VME: 10 mg/m ³	TWA: 1 mg/m ³ 8 uren	TWA / VLA-ED: 10
(Al2O3)		STEL: 12 mg/m ³ 15 min	(8 heures).		mg/m ³ (8 horas) TWA /
		TWA: 10 mg/m ³ 8 hr			VLA-ED: 1 mg/m ³ (8
		TWA: 4 mg/m ³ 8 hr			horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Aluminum oxide		TWA: 1.25 mg/m ³ (8	TWA: 1 mg/m ³ 8 horas		
(Al2O3)		Stunden). AGW -	_		
, ,		exposure factor 2			
		TWA: 10 mg/m ³ (8			
		Stunden). AGW -			
		exposure factor 2			
		TWA: 4 mg/m ³ (8			
		Stunden). MAK			
		TWA: 1.5 mg/m ³ (8			
		Stunden). MAK			

Component	Austria	Denmark	Switzerland	Poland	Norway
Aluminum oxide	MAK-KZGW: 10 mg/m ³	TWA: 5 mg/m ³ 8 timer	STEL: 24 mg/m ³ 15	TWA: 2.5 mg/m ³ 8	TWA: 10 mg/m ³ 8 timer
(Al2O3)	15 Minuten	TWA: 2 mg/m ³ 8 timer	Minuten	godzinach	STEL: 20 mg/m ³ 15
	MAK-TMW: 5 mg/m ³ 8	STEL: 10 mg/m ³ 15	TWA: 3 mg/m ³ 8	TWA: 1.2 mg/m ³ 8	minutter. set equal to
	Stunden	minutter	Stunden	godzinach	the limit value for
		STEL: 4 mg/m ³ 15	TWA: 10 mg/m ³ 8		Nuisance dust;value
		minutter	Stunden		calculated

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Aluminum oxide		TWA-GVI: 10 mg/m ³ 8			
(AI2O3)		satima. total dust,			

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inhalable particles TWA-GVI: 4 mg/m ³ 8 satima. respirable dust
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Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Aluminum oxide (Al2O3)	TWA: 10 mg/m ³ 8 tundides. total dust TWA: 4 mg/m ³ 8 tundides. respirable dust		TWA: 10 mg/m³ TWA: 5 mg/m³	TWA: 52 mg/m³ 8 órában. AK Al	TWA: 10 mg/m ³ 8 klukkustundum. Al Ceiling: 20 mg/m ³ Al

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Aluminum oxide (Al2O3)	TWA: 6 mg/m³	TWA: 5 mg/m ³ inhalable fraction IPRD AI TWA: 2 mg/m ³ respirable fraction IPRD AI			TWA: 2 mg/m ³ 8 ore TWA: 3 mg/m ³ 8 ore TWA: 1 mg/m ³ 8 ore STEL: 5 mg/m ³ 15 minute STEL: 10 mg/m ³ 15 minute STEL: 3 mg/m ³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Aluminum oxide (Al2O3)	TWA: 6 mg/m ³ 0043 in the form of disintegration aerosol TWA: 1 mg/m ³ 0045 containing up to 20% Cr2O3;catalyst IM-2201 MAC: 3 mg/m ³	inhalable dust TWA: 1.5 mg/m ³ respirable dust		TLV: 5 mg/m³ 8 timmar. Al NGV TLV: 2 mg/m³ 8 timmar. Al NGV	

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment		Microorganisms in sewage treatment	,
Aluminum oxide (Al2O3) 1344-28-1 (100)	PNEC = 0.3136µg/L		PNEC = 3.136µg/L	PNEC = 20mg/L	

8.2. Exposure controls

Engineering Measures

None under normal use conditions.

Wear safety glasses with sic	de shields (or goggles)	(European standard - EN 166)
Protective gloves		
ough time Glove thickness	EU standard	Glove comments
ufacturers -	EN 374	(minimum requirement)
l	Protective gloves Dugh time Glove thickness ufacturers - endations	ough time Glove thickness EU standard ufacturers - EN 374

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection	No protective equipment is needed under normal use conditions.
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended Filter type: Particle filter
Small scale/Laboratory use	Maintain adequate ventilation

Environmental exposure controls No information available.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Solid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Odorless No data available 2030 °C / 3686 °F No data available 2977 °C / 5390.6 °F Not applicable No information available No data available	@ 760 mmHg Solid
Flash Point Autoignition Temperature Decomposition Temperature pH	No information available No data available No data available	Method - No information available
Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wate Vapor Pressure Density / Specific Gravity	negligible 3.9700	Solid
Bulk Density Vapor Density Particle characteristics	No data available Not applicable No data available	Solid

9.2. Other information

Molecular Formula	
Molecular Weight	
Evaporation Rate	

Al2O3 101.96 Not applicable - Solid

Section 10: Stability and reactivity

10.1. Reactivity No	ne known, based on information available
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10.2. Chemical stability

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Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous Reactions	No information available. None under normal processing.
10.4. Conditions to avoid	Incompatible products. Excess heat.
10.5. Incompatible materials	None known.

10.6. Hazardous decomposition products

None under normal use conditions.

Section 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;	
Oral	Based on available data, the classification criteria are not met
Dermal	No data available
Inhalation	No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aluminum oxide (Al2O3)	> 5000 mg/kg (Rat)	-	> 2.3 mg/l 4 h
	(OECD Guideline 401)		(OECD Guideline 403)

(b) skin corrosion/irritation;	No data available
(c) serious eye damage/irritation;	No data available
(d) respiratory or skin sensitization; Respiratory Skin	No data available No data available
(e) germ cell mutagenicity;	No data available

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(f) carcinogenicity;

Based on available data, the classification criteria are not met

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Aluminum oxide (Al2O3)			Cat. 2 (Fibre dust)	
) reproductive toxicity;	lo data available			
n) STOT-single exposure;	lo data available			
) STOT-repeated exposure;	lo data available			
Target Organs	lo information availa	ble.		
	lot applicable Solid			
ymptoms / effects,both acute and N elayed	lo information availa	ble.		

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

Section 12: Ecological information

12.1. Toxicity Ecotoxicity effects

12.2. Persistence and degradability No information available

- 12.3. Bioaccumulative potential No information available
- 12.4. Mobility in soil No informati

No information available

12.5. Results of PBT and vPvBSuassessmentar

12.6. Endocrine disrupting

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects	
Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

properties

Section 13: Disposal considerations

13.1. Waste treatment methods

Waste from Residues/Unused Products	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
Contaminated Packaging	Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used.
Switzerland - Waste Ordinance	Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600 https://www.fedlex.admin.ch/eli/cc/2015/891/en

Section 14: Transport information

IMDG/IMO

Not regulated

14.1. UN number14.2. UN proper shipping name14.3. Transport hazard class(es)14.4. Packing group

<u>ADR</u>

Not regulated

<u>14.1. UN number</u>
14.2. UN proper shipping name
14.3. Transport hazard class(es)
14.4. Packing group

 IATA
 Not regulated

 14.1. UN number
 14.2. UN proper shipping name

 14.2. UN proper shipping name
 14.3. Transport hazard class(es)

 14.4. Packing group
 14.4. Packing group

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk Not applicable, packaged goods

according to IMO instruments

Section 15: Regulatory information

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Aluminum oxide (Al2O3)	1344-28-1	215-691-6	-	-	Х	Х	KE-01012	Х	Х
Component	CAS No	TSCA	TSCA In notific	ventory ation -	DSL	NDSL	AICS	NZIoC	PICCS
			Active-	nactive					
Aluminum oxide (Al2O3)	1344-28-1	Х	ACT	IVE	Х	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH Not applicable

Component		REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	on Certain Dangerous	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Aluminum oxide (Al2O3)	1344-28-1	-	-	-

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements
Aluminum oxide (Al2O3)	1344-28-1	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

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 .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Aluminum oxide (Al2O3)	nwg	

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

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15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

Section 16: Other information

Full text of H-Statements referred to under sections 2 and 3

Legend **CAS** - Chemical Abstracts Service TSCA - United States Toxic Substances Control Act Section 8(b) Inventory EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances Substances List PICCS - Philippines Inventory of Chemicals and Chemical Substances **ENCS** - Japanese Existing and New Chemical Substances **IECSC** - Chinese Inventory of Existing Chemical Substances AICS - Australian Inventory of Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances NZIOC - New Zealand Inventory of Chemicals WEL - Workplace Exposure Limit TWA - Time Weighted Average ACGIH - American Conference of Governmental Industrial Hygienists IARC - International Agency for Research on Cancer DNEL - Derived No Effect Level Predicted No Effect Concentration (PNEC) **RPE** - Respiratory Protective Equipment LD50 - Lethal Dose 50% LC50 - Lethal Concentration 50% EC50 - Effective Concentration 50% NOEC - No Observed Effect Concentration POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative PBT - Persistent, Bioaccumulative, Toxic ADR - European Agreement Concerning the International Carriage of ICAO/IATA - International Civil Aviation Organization/International Air Dangerous Goods by Road Transport Association **IMO/IMDG** - International Maritime Organization/International Maritime MARPOL - International Convention for the Prevention of Pollution from Dangerous Goods Code Ships OECD - Organisation for Economic Co-operation and Development ATE - Acute Toxicity Estimate BCF - Bioconcentration factor VOC - (volatile organic compound) Key literature references and sources for data https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Prepared By Revision Date Revision Summary Health, Safety and Environmental Department 02-May-2025 Not applicable.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

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

End of Safety Data Sheet