

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Aluminium-doped Zinc Oxide

Revision Date: 9/16/2025

Version: 3

### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

#### 1.1 Product identifier

**Product name** Aluminium-doped Zinc oxide,  
*Nanoform*, 20 – 40 nm

**Product code** NO-0061

**CAS** 37275-76-6

**EC-Number** 215-222-5

**REACH No.** A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration envisaged for a later registration deadline.

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

**Identified uses** Laboratory chemicals, Manufacture of substances

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

**Supplier** IoLiTec  
Ionic Liquids Technologies GmbH  
Im Zukunftspark 9  
D – 74076 Heilbronn  
Germany

**Telephone** +49 (0)7131-89839-0

**Fax** +49 (0)7131-89839-109

**Email** msds@iolitec.de

#### 1.4 Emergency telephone number

**Emergency telephone** +49 (0)151-41255671

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### 2 HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

Eye Irritation (Category 2A)

Specific Target Organ Toxicity - Single exposure: Respiratory tract irritation  
(Category 3)

Hazardous respirable dust may be formed when used.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

##### Pictogram



##### Signal word

Warning

##### Hazard statements

##### H-phrases

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

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### *Precautionary statements*

#### **P phrases**

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P312	Call a POISON CENTRE/doctor/... if you feel unwell.
P337 + P313	If eye irritation persists get medical advice/attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

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### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### *Ecological information:*

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### *Toxicological information:*

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Aluminium-doped Zinc oxide, 20 – 40 nm

**CAS:** 37275-76-6

**EC-Number:** 215-222-5

Ingredient name	Contents	Classification
Aluminium-doped Zinc oxide, 20 – 40 nm	99.9%	Aquatic Acute 1; Aquatic Chronic 1 Eye Irr. 2A; STOT SE 3
ZnO	> 98wt%	
Al <sub>2</sub> O <sub>3</sub>	< 2wt%	
Formula	Molecular Weight	
ZnO/Al <sub>2</sub> O <sub>3</sub>	n/a	

No components need to be disclosed according to the applicable regulations.

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### 4 FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General

Contaminated clothing should be removed and washed before being reused.

Contaminated clothing should not be allowed out of the work place.

##### Inhalation

Move the exposed person to fresh air at once. If respiratory problems, provide artificial respiration/oxygen. [Get medical attention if you feel unwell.](#)

##### Ingestion

Immediately rinse mouth and provide fresh air. Do not induce vomiting. Get medical attention immediately.

##### Skin

Wash the skin immediately with soap and water. [Get medical attention if you feel unwell.](#)

##### Eyes

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. [Get medical attention if you feel unwell.](#)

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available.

### 5 FIRE FIGHTING MEASURES

#### 5.1 Extinguishing media

Use suitable fire-fighting measures depending on the surrounding environment.

Use: Water spray, fog or mist. Carbon dioxides (CO<sub>2</sub>). Dry chemicals, sand, dolomite etc.

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### 5.2. Special hazards arising from the substance or mixture

Avoid water in straight hose stream, will scatter and spread fire. Keep run-off water out of sewers and water sources. Dike for water control. Fire causes formation of toxic gases.

### 5.3. Advice for firefighters

Wear self-contained breathing apparatus as combustion may produce hazardous fumes.

## 6 ACCIDENTAL RELEASE MEASURES

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

Wear protective clothing and avoid inhalation of vapor, skin or eye contact.

### 6.2 Environmental precautions

Avoid washing into water courses. Avoid contaminating public drains or water supply.

### 6.3 Methods and materials for containment and cleaning up

Avoid contact with skin or inhalation of spillage, dust or vapor. Avoid dust formation. Collect and reclaim or dispose in sealed containers in license waste. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate.

### 6.4 Reference to other sections

For disposal see section 13.

## 7 HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Do not use in confined spaces without adequate ventilation and/or respirator.

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

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

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### Storage class

Storage class (TRGS 510): 11: Combustible Solids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 8.1 Control parameters

Ingredients with workplace control parameters.

### 8.2 Exposure controls

#### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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### Exposure Limits

No special precautionary measures necessary.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Physical state	Solid Powder
b) Color	Colorless.
c) Odor	no characteristic odor
d) Melting point/freezing point	1975°C
e) Initial boiling point	no data available
f) Flammability	no data available
g) Upper/lower explosive limits	no data available
h) Flash point	no data available
i) Autoignition temperature	no data available
j) Decomposition temperature	no data available
k) pH	no data available
l) Kinematic viscosity	no data available
m) Water solubility	no data available
n) Partition coefficient	no data available
o) Vapor pressure	no data available
p) Density	no data available
q) Relative vapor density	no data available
r) Particle characteristics	20 - 40 nm, APS
s) Explosive properties	no data available
t) Oxidizing properties	no data available

### 9.2 Other safety information

No data available.

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### 10 STABILITY AND REACTIVITY

#### 10.1 Reactivity

No data available.

#### 10.2 Chemical stability

Stable under normal temperatures and pressures.

#### 10.3 Possibility of hazardous reactions

Violent reactions possible with: hydrogen peroxide, magnesium.

#### 10.4 Conditions to avoid

No data available.

#### 10.5 Incompatible materials

Strong oxidizing agents. Magnesium. Chlorinated rubber. Zinc chloride. Hydrogen fluoride.

#### 10.6 Hazardous decomposition products

High temperatures generate: Corrosive gases/vapor/fumes of: Zinc/zinc oxides.

### 11 TOXICOLOGICAL INFORMATION

#### 11.1 Information on hazard classes

##### Acute toxicity

LD50 Oral - Mouse - 7,950 mg/kg (Zinc oxide)

LC50 Inhalation - Mouse - 2,500 mg/m<sup>3</sup> (Zinc oxide)

Dermal: No data available

##### Skin corrosion/irritation

Skin - Rabbit

Result: Mild skin irritation - 24 h (Zinc oxide)

##### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Mild skin irritation - 24 h (Zinc oxide)

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### Respiratory or skin sensitization

No data available.

### Germ cell mutagenicity

No data available.

### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

### Reproductive toxicity

No data available.

### Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

### Specific target organ toxicity - repeated exposure

No data available.

### Aspiration hazard

No data available.

### Potential health effects

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.

**Ingestion** May be harmful if swallowed.

**Skin** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes** Causes serious eye irritation.

### Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 11.2 Additional Information

### Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU)2018/605 at levels of 0.1% or higher.

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### RTECS:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity

#### Zinc oxide:

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 1.1 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 0.098 mg/l - 48 h

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

Do not allow material to be released to the environment without proper governmental permits.

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### 13 DISPOSAL CONSIDERATIONS

#### 13.1 Waste treatment methods

Contact specialist disposal companies. Dispose of in accordance with Local Authority requirements. Recover and reclaim or recycle, if practical.

### 14 TRANSPORT INFORMATION

#### 14.1 UN number

ADR/RID: UN3077

IMDG: UN3077

IATA: UN3077

#### 14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.  
(ZINC OXIDE)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Zinc oxide)

IATA: Environmentally hazardous substance, solid, n.o.s.  
(Zinc oxide)

#### 14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

#### 14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

#### 14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: yes

#### 14.6 Special precautions for user

No data available.

#### Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for

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liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9.

### 15 REGULATORY INFORMATION

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### 15.2 Chemical safety assessment

no data available

#### Country specific information

Germany

WGK: 2

(Self-Classification)

### 16 OTHER INFORMATION

#### DISCLAIMER

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