



SAFETY DATA SHEET

In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended

ZnO-DMSO ink (zinc oxide QDs solution in DMSO)

Date: 07.06.2022

Revision: -

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

1.1. Product identifier

ZnO-DMSO ink (zinc oxide QDs solution in DMSO)

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

Relevant identified uses: Fluorescent material. Used for scientific research and development.

Uses advised against: Not specified.

1.3. Details of the supplier of the safety data sheet

Supplier: NANOXO sp. z o.o.

Address: Poland; PL 01-224 Warszawa; Marcina Kasprzaka 44/52 Street

Telephone: +48 22 378 48 30

E-mail address of the person responsible for the SDS: info@nanoxo.eu

1.4. Emergency telephone number

112 (emergency call)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 1272/2008/EC:

Aquatic Chronic 2; H411

Hazards to man: Does not meet the criteria of classification.

Hazards to environment: Harmful to aquatic life with long lasting effects.

Hazard from physical and chemical properties: Does not meet the criteria of classification.

In section 16 stated the meaning of H-phrases and symbols.

2.2. Label elements

Label accordance with Regulation 1272/2008/EC (CLP)

Hazard pictogram, signal words: None.

Hazard statements:

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements:

P273 - Avoid release to the environment.

P501 - Dispose of contents/container to disposal containers.

The names of hazardous ingredients on the label: None.

2.3. Other hazards

The product does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation 1907/2006 (REACH).



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The product does not contain ingredients entered in the list established in accordance with Art. 59 paragraph 1 as having endocrine disrupting properties or components with endocrine disrupting properties in accordance with the criteria set out in Regulation 2017/2100/EU or Regulation 2018/605/EU in a concentration equal to or greater than 0.1 %.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable.

3.2. Mixtures

Contains Dimethyl sulfoxide [CAS: 67-68-5]

Substance name:	Zinc oxide
Concentration [%]:	≥0.25 - <2,5
CAS Number:	1314-13-2
EC Number:	215-222-5
Index Number:	030-013-00-7
Classification 1272/2008/EC:	Aquatic Acute 1; H400 Aquatic Chronic 1; H410
The registration number:	Not applicable. The substance does not import more than 1 tonne per year (Article 6 (1) of Regulation 1907/2006 (REACH))

In section 16 stated the importance of H-phrases and symbols.

The product does not contain impurities or additives that could affect product's labelling and classification according to Regulation No 1272/2008/EC (CLP) in the concentration ranges specified.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: Move affected person to fresh air and keep at rest. In the case of alarming symptoms, seek medical advice.

Skin contact: Take off all contaminated clothing. Wash contaminated skin with soap and water, and then rinse with plenty of clean water. In the case of alarming symptoms, seek medical advice.

Eye contact: Remove contact lenses. Rinse contaminated eyes with water for at least 15 minutes, holding the eyelids open. From time to time, place the upper eyelid over the lower one. In the case of alarming symptoms, seek medical advice.

Ingestion: Seek medical advice.

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

Usually does not cause any health effects.

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

Remove affected person from the environment contaminated by the product. In the event of health problems, consult your doctor or the center of toxicological concern. Provide the information contained in the SDS. If unconscious, do not give anything by mouth.



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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Extinguishing media should be adapted to surrounding objects.

Unsuitable extinguishing media: Not specified.

5.2. Special hazards arising from the substance or mixture

In case of fire hazardous products may be formed: e.g. carbon oxide. Avoid inhalation of combustion products, because they may pose a health risk.

5.3. Advice for firefighters

Wear full protective equipment and self-contained breathing apparatus with independent air circulation. Containers exposed to fire or high temperature cool with water and if possible remove from the danger zone. Protect drains, surface waters and soil from pollution. Water from fire treated as hazardous pollution and accumulate in separate containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Access of non-emergency personnel to the area of accident should be restricted until the completion of the disposal of the product. Wear appropriate personal protective equipment. Provide adequate ventilation.

For emergency responders: Wear appropriate personal protective equipment. Provide adequate ventilation.

6.2. Environmental precautions

Secure the gullies. Prevent contamination of surface water and ground. In the event of any serious pollution of the environment, notify the appropriate administrative authority, control and rescue services. The used containers should be disposed by delivering to eligible organizations.

6.3. Methods and material for containment and cleaning up

Secure damaged packaging. Absorb with liquid-absorbent material. Collected product put in a substitute container and direct to the destruction. Ventilate the contaminated room.

6.4. Reference to other sections

Disposal - see Section 13. Personal protective equipment - see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not eat, drink, smoke or take drugs at work. Wash hands before breaks and after working with the product. Wear appropriate personal protective equipment. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation at the workplace with the product.

7.2. Conditions for safe storage, including any incompatibilities

Keep in properly labelled, factory sealed containers, with a label which complies with current regulations. Store in a cool and dry place. Store in a well-ventilated place. Keep container tightly closed. Avoid direct sunlight.



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7.3. Specific end use(s)

Used for scientific research and development.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Not specified.

Legal basis: Ordinance on maximum permissible concentration and intensity of harmful factors in the work environment in accordance with national limit values.

EH40/2005 Workplace exposure limits, fourth edition, published 2020, ISBN 978 0 7176 6733 8.

Monitoring procedures: Not specified.

DNEL - Derived No-Effect Levels:

Dimethyl sulfoxide [CAS: 67-68-5]

Short-term systemic exposure – inhalation – 484 mg/m³

Short-term local exposure – inhalation – 265 mg/m³

Short-term systemic exposure – skin – 200 mg/kg b.w./day

PNEC - Predicted No-Effect Concentration:

Dimethyl sulfoxide [CAS: 67-68-5]

Fresh water – 17 mg/l

Marine water – 1.7 mg/l

STP – 11 mg/l

Fresh water, sediment – 13.4 mg/kg

Soil – 3.02 mg/kg

8.2. Exposure controls

Mandatory general regulations on occupational health. Do not allow to exceed the normative concentrations of hazardous constituents in the workplace. After work, wash the body surface and clean the personal protective equipment. Do not eat, drink, smoke or take drugs at work. Wash hands and face during breaks and after working with the product. Provide adequate ventilation in the workplace. Avoid skin contact. Avoid inhaling the product.

Eye/face protection: Use appropriate safety glasses according to EN 166.

Skin Protection: Use suitable protective gloves in accordance with EN 374.

Respiratory protection: Use suitable respiratory protection.

Thermal Hazards: Usually is not required.

Used personal protective equipment should meet the requirements of local/regional/national laws. The employer must provide personal protective equipment appropriate to the type of work and in accordance with all requirements, including maintenance and cleaning.

Concentrations of hazardous substances in the workplace should be monitored in accordance with acknowledged test methods. Mode, method, type and frequency of testing and measurement of harmful factors in the working environment should meet the requirements of local/regional/national laws.

Environmental exposure controls: The large amount of product should not be allowed to penetrate through the ground water, sewage, waste water or soil.



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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Not specified
Odour:	Not specified
Melting point/freezing point:	Not specified
Boiling point or initial boiling point and boiling range:	Not specified
Flammability:	Not specified
Lower and upper explosion limit:	Not specified
Flash point:	Not specified
Auto-ignition temperature:	Not specified
Decomposition temperature:	Not specified
pH:	Not specified
Kinematic viscosity:	Not specified
Solubility:	Not specified
Partition coefficient n-octanol/water (log value):	Not specified
Vapour pressure:	Not specified
Density and/or relative density:	Not specified
Relative vapour density:	Not specified
Particle characteristics:	Not specified

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Not specified.

9.2.2. Other safety characteristics

Not specified.

SECTION 10: Stability and reactivity

10.1. Reactivity

Not reactive under normal conditions of use and storage.

10.2. Chemical stability

Stable under normal conditions of storage.

10.3. Possibility of hazardous reactions

Not specified.

10.4. Conditions to avoid

Not specified.

10.5. Incompatible materials

Strong oxidizers, chlorates, potassium, salt, nitrates, perchlorates, permanganate, nitric acid, acid and inorganic chlorides, strong acids, phosphorus oxides.

10.6. Hazardous decomposition products

None under normal conditions of use and storage.

SECTION 11: Toxicological information

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

Acute toxicity: Based on available data, the classification criteria are not met.

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Dimethyl sulfoxide [CAS: 67-68-5]

 LD₅₀ (oral, rat) 28300 mg/kg b.w.

 LD₅₀ (skin, rat) 40000 mg/kg b.w.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Respiratory or skin sensitization: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT - single exposure: Based on available data, the classification criteria are not met.

STOT - repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

11.2. Information on other hazards
11.2.1. Endocrine disrupting properties

Not specified.

11.2.2. Other information
Inhalation: Usually does not cause any health effects.

Skin contact: Usually does not cause any health effects.

Eye contact: Usually does not cause any health effects.

Ingestion: Usually does not cause any health effects.

SECTION 12: Ecological information
12.1. Toxicity

Harmful to aquatic life with long lasting effects.

ECHA database for zinc oxide [CAS: 1314-13-2]:

Toxicity to fish:

 LC₅₀ (*Oncorhynchus Mykiss*) 0.169 mg Zn/l (at neutral / high pH and low hardness)

 LC₅₀ (*Pimephales promelas*) 0.780 mg Zn/l (at low pH and high hardness) and 0.330 mg Zn/l (at neutral/high pH, high hardness)

For nanoparticle values:

 LC₅₀ (*Danio rerio*) 1.44 mg Zn/l - 1.79 mg Zn/l

Dimethyl sulfoxide [CAS: 67-68-5]

Toxicity to fish:

 LC₅₀ >25 g/l/96 h

Toxicity to aquatic invertebrates:

 EC₅₀ >24.6 g/l/48 h

Toxicity to algae:

 ErC₅₀ >17 g/l/72 h

12.2. Persistence and degradability

Not specified.



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12.3. Bioaccumulative potential

Not specified.

12.4. Mobility in soil

Not applicable.

12.5. Results of PBT and vPvB assessment

Not applicable.

12.6. Endocrine disrupting properties

Not specified.

12.7. Other adverse effects

Not specified.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

During removal of waste comply with the regional / national laws.

Community legislation:

- Directive **2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.


- European Parliament and Council Directive **94/62/EC** of 20 December 1994 on packaging and packaging waste as amended.

Disposal methods for the product: Do not introduce into the environment. Disposal in accordance with the local/national legislation.

Disposal methods for used packing: Empty containers give for appropriate rubbish dump or for disposal in accordance with the local/national legislation. Dispose of uncleanable containers like of the product.

SECTION 14: Transport information

	ADR	RID	AND	IMDG	ICAO TI
14.1. UN number or ID number	Not specified				
14.2. UN proper shipping name	Not specified				
14.3. Transport hazard class(es)	Not specified				
14.4. Packing group	Not specified				
14.5. Environmental hazards	Toxic to aquatic life with long lasting effects				
14.6. Special precautions for user	During cargo handling use personal protective equipment - see Section 8				
14.7. Maritime transport in bulk according to IMO instruments	Not specified				

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SECTION 15: Regulatory information

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 as amended.

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste as amended.

Commission directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Commission directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC.

Commission directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

Commission directive (EU) 2017/164 of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

15.2. Chemical safety assessment

The Chemical Safety Assessment has not been performed.

SECTION 16: Other information

The full text of H-statements from Sections 2 and 3:

H400 - Very toxic to aquatic life.

H410 - Very toxic to aquatic life with long lasting effects.

H412 - Harmful to aquatic life with long lasting effects.

Key to abbreviations and acronyms:

Aquatic Acute 1 - Hazardous to the aquatic environment - Acute Hazard, Category 1.

Aquatic Chronic 1, 3 - Hazardous to the aquatic environment - Chronic Hazard, Category 1, 3.

DNEL - Derived No-Effect Levels.

EC₅₀ - Half maximal effective concentration.

ErC₅₀ - Reduction of growth rate.

LC₅₀ - Median lethal concentration.



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Training advice: Before use read the SDS.

Classification according to Regulation 1272/2008/EC:

Classification

Aquatic Chronic 3; H412

Classification procedure:

Calculation method

Sources of key data:

Information provided electronically.

Safety Data Sheets of the mixture ingredients.

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are also treated as aid to safety in transport, storage and usage of the product. This does not free the user from the responsibility of improper usage of the information above also of improper compliance with the law norms in the field.

Prepared by ISOTOP s.c. Consulting Company; www.isotop.pl; e-mail: reach@isotop.pl

This SDS replaces and annuls all the previous versions.