

SAFETY DATA SHEET

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

QUNND_3

Date: 19.04.2023

Revision: -

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

1.1. Product identifier

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

Relevant identified uses: Used as fluorescent markers, crystal growth, conductive polymer input, polishing materials, in scientific research.

Uses advised against: Not determined.

1.3. Details of the supplier of the safety data sheet

Supplier: Politechnika Gdańska

Address: Poland; PL 80-233 Gdańsk, Gabriela Narutowicza 11/12

Telephone/Fax: +48583471503

E-mail address of the person responsible for the SDS: robbogda@pg.edu.pl

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:

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

Hazards to environment: Does not meet the criteria of classification as dangerous for the environment.

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

2.2. Label elements

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

Hazard pictograms, signal words: None.

Hazard statements: None.

Precautionary statements: None.

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).

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

The suspension contains the following ingredients:

Substance name:	Dimethyl sulfoxide*
Concentration [%]:	99.9

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CAS Number:	67-68-5
EC Number:	200-664-3
Index Number:	-
Classification 1272/2008/EC:	-
The registration number:	01-2119431362-50-XXXX

Substance name:	Carbon (Diamond)*
Concentration [%]:	0.1
CAS Number:	7782-40-3
EC Number:	231-953-2
Index Number:	-
Classification 1272/2008/EC:	-
The registration number:	Not applicable. The substance does not import more than 1 tonne per year (Article 6 (1) of Regulation 1907/2006 (REACH))

*Substance not classified in Annex VI, Table 3.1 of Regulation 1272/2008.

Type of diamond:	Synthetic, detonation nanodiamond (DND)
Dispersion medium:	Dimethyl sulfoxide (DMSO)
Mean size of diamond particles:	600 nm
Concentration of diamond (w/w):	0.1 %
Volume (single package):	10 ml

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: Remove affected person to fresh air and keep rested. Seek medical advice if there are worrisome symptoms.

Skin contact: Wash contaminated skin with plenty of water and soap. Seek medical advice if there are worrisome symptoms.

Eye contact: Remove any contact lenses. Wash contaminated eyes with plenty of water for at least few minutes, with eyelids rolled up. From time to time, overlap the upper eyelid with the lower eyelid. Seek medical advice if there are worrisome symptoms.

Ingestion: Rinse out mouth with water. Seek medical advice if there are worrisome symptoms.

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

It usually does not cause negative 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 centre of toxicological concern. Provide the information contained in the SDS. If unconscious, do not give anything by mouth.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water spray, alcohol-resistant foam, extinguishing powder, carbon dioxide (CO₂).

Unsuitable extinguishing media: Water jet.

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5.2. Special hazards arising from the substance or mixture

Hazardous products can form during a fire e.g.: carbon monoxide, sulfur oxides. 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. Treat fire water as a dangerous pollutant and collect it 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 and ground water. In the event of any serious pollution of the environment, notify the appropriate administrative authority, control and rescue services.

6.3. Methods and material for containment and cleaning up

Secure damaged packaging. Collect with absorbent materials. Collected product put in a substitute container and direct to the destruction. Protect sewers and surface waters from contamination.

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 break and after work with product. Take off contaminated clothing and wash it before reuse. Provide adequate ventilation in the workplace.

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 well-ventilated room.

7.3. Specific end use(s)

Used as fluorescent markers, crystal growth, conductive polymer input, polishing materials, in scientific research.

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.

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Monitoring procedures: Use methods described in European Standards.

DNEL - Derived No-Effect Levels:

Dimethyl sulfoxide [CAS: 67-68-5]

For workers:

Chronic toxicity – inhalation – 265 mg/m³

Chronic toxicity – skin – 200 mg/kg/day

For consumers:

Chronic toxicity – oral – 60 mg/kg/day

Chronic toxicity – inhalation – 47 mg/m³

Chronic toxicity – skin – 120 mg/kg/day

PNEC - Predicted No-Effect Concentration:

Dimethyl sulfoxide [CAS: 67-68-5]

Fresh water – 17 mg/dm³

Marine water – 1,7 mg/m³

Fresh water, sediment – 13,4 mg/m³

Soil – 3,02 mg/kg

STP – 11 mg/m³

8.2. Exposure controls

Mandatory general regulations on occupational health. After work, wash and clean the surface of the body and clothing. Do not eat, drink, smoke or take drugs at work. Take off all contaminated clothing and wash it before reuse. Wash hands and face before break and after working with the product. Provide adequate ventilation in the workplace.

Eye/face protection: Use appropriate safety glasses in accordance with EN 166.

Skin Protection: Use appropriate protective gloves according to EN 374. Use appropriate protective clothing.

Respiratory protection: With sufficient ventilation, it is not required.

Thermal Hazards: Not required.

The personal protective equipment used should meet the requirements of Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment. 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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:

Suspension

Colour:

White, opaque

Odour:

Characteristic*

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Melting point/freezing point:	18.5 °C*
Boiling point or initial boiling point and boiling range:	189 °C*
Flammability:	Not specified
Lower and upper explosion limit:	6.3 % vol. / 28.5 % vol.
Flash point:	87 °C*
Auto-ignition temperature:	300 °C*
Decomposition temperature:	189 °C*
pH:	Not specified
Kinematic viscosity:	2.14 mPa·s (20 °C)
Solubility:	Soluble in water
Partition coefficient n-octanol/water (log value):	- 1.35*
Vapour pressure:	0.56 hPa (20 °C)*
Density and/or relative density:	1.096 g/mL (20 °C)*
Relative vapour density:	Not specified
Particle characteristics:	Not specified

*physicochemical properties for dimethyl sulfoxide [CAS: 67-68-5]

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

The product under proper conditions of use is not chemically reactive.

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

Not specified.

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.

Dimethyl sulfoxide [CAS: 67-68-5]

LD₅₀ (oral, rat) 28300 mg/kg b.w.

LD₅₀ (skin, rat) 40000 mg/kg b.w.

LOAEL (oral, rat) 9900 mg/kg b.w.

NOAEL (inhalation, rat) 0,964 mg/dm³

NOAEL (oral, rat) 3300 mg/kg b.w.

NOAEL (skin, monkey) ≥8910 mg/kg b.w.

LOAEL (skin, monkey) 990 mg/kg b.w.

LOAEL (inhalation, rat) 2783 mg/m³

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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 applicable.

11.2.2. Other information

Inhalation: It usually does not cause negative health effects.

Skin contact: It usually does not cause negative health effects.

Eye contact: It usually does not cause negative health effects.

Ingestion: It usually does not cause negative health effects.

SECTION 12: Ecological information

12.1. Toxicity

Does not meet the criteria of classification as dangerous for the environment.

Dimethyl sulfoxide [CAS: 67-68-5]

Toxicity to fish:

LC₅₀ (*Pimephales promelas*) >25 g/dm³/48 h

EC₅₀ (*Daphnia magna*) 24,6 g/dm³/48 h

ErC₅₀ (*Pseudokirchneriella subcapitata*) 17 g/dm³/72 h

12.2. Persistence and degradability

Not specified.

12.3. Bioaccumulative potential

Not specified.

12.4. Mobility in soil

Not specified.

12.5. Results of PBT and vPvB assessment

Not applicable.

12.6. Endocrine disrupting properties

Not applicable.

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.

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- 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: Product and containers give for appropriate rubbish dump or for disposal in accordance with the local/national legislation.

Waste code is assigned depending on the source of their creation, the end user should taking into account the specific conditions of use of the product, define waste and assign the appropriate code in accordance with current regulations.

SECTION 14: Transport information

	ADR	RID	ADN	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			Not specified		
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 applicable		

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).

Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC.

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

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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.

Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

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

None.

Key to abbreviations and acronyms:

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

DNEL - Derived No-Effect Levels.

EC₅₀ - Half maximal effective concentration.

ErC₅₀ - Reduction of growth rate.

ICAO TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air.

IMDG - International Maritime Dangerous Goods.

LC₅₀ - Median lethal concentration.

LD₅₀ - Median lethal dose.

LOAEL - Lowest Observed Adverse Effect Level.

NOAEL - No-observed adverse effect-level.

PNEC - Predicted No-Effect Concentration.

RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.

Sources of key data:

Material Safety Data Sheets.

Database of the European Chemicals Agency.

Training advice: Before use read the SDS.

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

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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**