

Dimethyl sulfoxide

Safety Data Sheet

901022

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 03/10/2019

Version: 1.0

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

1.1. Product identifier

Product form : Substance
Substance name : Dimethyl sulfoxide
IUPAC name : methanesulfinylmethane
EC-No. : 200-664-3
CAS-No. : 67-68-5
Product code : 901022
Type of product : Organic solvents
Formula : C₂H₆OS
Synonyms : DMSO
Product group : Raw material

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

1.2.1. Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : A highly polar organic liquid, that is used widely as a chemical solvent. Because of its ability to penetrate biological membranes, it is used as a vehicle for topical application of pharmaceuticals. It is also used to protect tissue during cryopreservation. Dimethyl sulfoxide shows a range of pharmacological activity including analgesia and anti-inflammation.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Duchefa Farma BV
A. Hofmanweg 71
2031BH Haarlem - Nederland
T +31(0)23-5319093
farma@duchefa.nl - www.duchefa-farma.com

1.4. Emergency telephone number

Emergency number : Supplier contact information:
+31(0)23-5319093 (M-F 09:00-17:00)
+31(0)6-30109355 (outside office hours)

Organisation/Company	Address	Comment
Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

According to EC directives or the corresponding national regulations there is no labelling obligation for this product.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Dimethyl sulfoxide	(CAS-No.) 67-68-5 (EC-No.) 200-664-3	> 99.9	Not classified

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If medical advice is needed, have product container or label at hand.
First-aid measures after inhalation	: Allow affected person to breathe fresh air Get medical advice and attention if you feel unwell.
First-aid measures after skin contact	: Wash skin with mild soap and water Seek medical attention if ill effect or irritation develops.
First-aid measures after eye contact	: Rinse immediately with plenty of water If eye irritation persists, take medical advice.
First-aid measures after ingestion	: Rinse mouth.

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

Symptoms/effects	: Coughing Gastrointestinal complaints.
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4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : On exposure to high temperature, may decompose, releasing toxic gases. Carbon monoxide. Sulphur oxides. Carbon dioxide.

5.3. Advice for firefighters

Precautionary measures fire : Exercise caution when fighting any chemical fire.

Firefighting instructions : Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ensure adequate air ventilation.

6.1.2. For emergency responders

Protective equipment : Wear proper protective equipment.

6.2. Environmental precautions

Dilute with plenty of water. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Cover spill with non combustible material, e.g.: sand, earth, vermiculite.

Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, well-ventilated area
Protect from moisture.
Protect from sunlight.

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Incompatible products	: Strong acids. Strong oxidizing agent.
Incompatible materials	: Metals.
Storage temperature	: 15 - 25 °C
Special rules on packaging	: in an airtight container.
Packaging materials	: glass.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Dimethyl sulfoxide (67-68-5)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	< 200 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	< 265 mg/m ³
Long-term - local effects, inhalation	< 484 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	< 60 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	< 120 mg/m ³
Long-term - systemic effects, dermal	< 100 mg/kg bodyweight/day
Long-term - local effects, inhalation	< 47 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	< 1.7 mg/l
PNEC aqua (marine water)	< 1.7 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	< 16.4 mg/kg dwt
PNEC (Soil)	
PNEC soil	< 3.02 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	7000 kg/kg food
PNEC (STP)	
PNEC sewage treatment plant	< 11 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Technical measures and appropriate working operations should have priority over the use of personal protective equipment.

Hand protection:

Neoprene protective gloves. Wear suitable gloves resistant to chemical penetration

Type	Material	Permeation	Thickness (mm)	Standard
Gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,11	EN ISO 374

Eye protection:

Safety glasses (to European standard EN 166 or equivalent)

Skin and body protection:

Wear suitable protective clothing.

Respiratory protection:

Dustmask with filtertype P3

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Molecular mass	: 78.1 g/mol
Colour	: Colourless.
Odour	: odourless.
Odour threshold	: No data available
pH	: 0
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 18.5 °C
Freezing point	: No data available
Boiling point	: 189 °C
Flash point	: 87 °C
Critical temperature	: 215
Auto-ignition temperature	: No data available
Decomposition temperature	: 190 °C
Flammability (solid, gas)	: Flammable solid, Flammable gas.
Vapour pressure	: 0.59 hPa (20°C)
Relative vapour density at 20 °C	: 2.7
Relative density	: No data available
Density	: 1.1 g/cm ³ (20°C)
Solubility	: Completely miscibility with water. Water: 1000 g/l
Log Pow	: -1.35
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 2.14 mPa·s
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 2.6 - 42 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions

No degradation under storage and handling according to regulations.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

On strong heating: Decomposition
Direct sunlight.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

In case of fire see chapter 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Dimethyl sulfoxide (67-68-5)	
LD50 oral rat	28300 mg/kg
LD50 dermal rat	40000 mg/kg
LC50 inhalation rat	> 5330 mg/l

Skin corrosion/irritation : Not classified
pH: 0

Serious eye damage/irritation : Not classified
pH: 0

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Dimethyl sulfoxide (67-68-5)	
Viscosity, kinematic	1.945 mm ² /s

SECTION 12: Ecological information

12.1. Toxicity

Dimethyl sulfoxide (67-68-5)	
LC50 fish 1	> 25000 mg/l
EC50 Daphnia 1	24600 mg/l (48 h)
EC50 other aquatic organisms 1	10 - 100 mg/l (0.5 h)

12.2. Persistence and degradability

Dimethyl sulfoxide (67-68-5)	
Persistence and degradability	Minimally biodegradable.
Biodegradation	31 % (28 days)

12.3. Bioaccumulative potential

Dimethyl sulfoxide (67-68-5)	
Log Pow	-1.35
Bioaccumulative potential	Based on the coefficient n-octanol / water (log Pow) a concentration in organisms not to be expected.

12.4. Mobility in soil

Dimethyl sulfoxide (67-68-5)	
Log Koc	0.64

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Avoid release to the environment.
 Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IATA
14.1. UN number	
Not applicable	Not applicable
14.2. UN proper shipping name	
Not applicable	Not applicable
14.3. Transport hazard class(es)	
Not applicable	Not applicable
Not applicable	Not applicable
14.4. Packing group	
Not applicable	Not applicable
14.5. Environmental hazards	
Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available	

14.6. Special precautions for user

. Overland transport

No data available

- Air transport

No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Dimethyl sulfoxide is not on the REACH Candidate List

Dimethyl sulfoxide is not on the REACH Annex XIV List

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

SDS	Safety Data Sheet
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

Data sources : 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. Supplier. Drugbank. EP.

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.