Revised on: 19.11.2019
Created on: 15.12.2016

Dimethyl sulfoxide for biochemistry

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name: Dimethyl sulfoxide for biochemistry

Article number: 1979

Registration number:

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-number: 67-68-5

1.2. Relevant identified uses of the substance or mixture

- **Identified uses**: Reagent for analysis, Chemical production

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier:
neoFroxx GmbH
Marie-Curie-Str. 3
D-64683 Einhausen
info@neofroxx.com

Further information obtainable from:
Dep. Quality Control

1.4. Emergency telephone number

+49 (6251) 989 24 - 0 (during normal business hours)

2. Hazards identification

2.1. Classification of the substance or mixture

This substance is not classified as dangerous according to European Union legislation.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3. Other hazards

None known.

3. Composition / information on ingredients

3.1. Chemical characterisation:

3.2. Substance

Formula: $(CH_3)_2SO$ C_2H_6OS (Hill)

EC-No.: 200-664-3

Molar mass: 78,13 g/mol

Remarks: No disclosure requirement according to Regulation (EC) No. 1907/2006.

3.3. Mixture

Not applicable

4. First aid measures

4.1. Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

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

Stomach/intestinal disorders

irritant effects, Headache, Nausea, Tiredness, CNS disorders

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

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media:

For this substance/mixture no limitations of extinguishing agents are given.

5.2. Special hazards arising from the substance or mixture

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters

Special protective equipment for firefighters:

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information:

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2. Environmental precautions:

Do not let product enter drains.

6.3. Methods and material for containment and cleaning up:
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4. Reference to other sections
Indications about waste treatment see section 13.

7. Handling and storage

7.1. Precautions for safe handling
Advice on safe handling:
Observe label precautions.
Advice on protection against fire and explosion:
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Hygiene measures:
Change contaminated clothing. Wash hands after working with substance.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions:
Tightly closed.
Recommended storage temperature: see product label.

7.3. Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls / personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1. Control parameters

8.2. Exposure controls
Engineering measures:
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See section 7.1.
Individual protection measures:
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.
Eye/face protection:
Safety glasses
Hand protection:
full contact:

Glove material:	polychloroprene
Glove thickness:	0,65 mm
Break through time:	> 480 min

splash contact:

Glove material:	natural latex
Glove thickness:	0,6 mm

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Break through time: > 240 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374.

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment:

Flame retardant antistatic protective clothing.

Respiratory protection:

required when dusts are generated.

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls:

Do not let product enter drains.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form: liquid

Colour: colourless

Odour: characteristic

Odour Threshold: No information available.

pH: No information available.

Melting point: 18,5 °C

Boiling point/boiling range: 189 °C at 1.013 hPa

Flash point: 87 °C Method: c.c.

Evaporation rate: No information available.

Flammability (solid, gas): The product is not flammable.

Lower explosion limit: 1,8 %(V)

Upper explosion limit: 63,0 %(V)

Vapour pressure: 0,6 hPa at 20 °C

Relative vapour density: 2,7

Density: 1,10 g/cm3 at 20 °C

Relative density: No information available.

Water solubility: 1.000 g/l at 20 °C

Partition coefficient: n-octanol/water: log Pow: -1,35 (experimental)

(Lit.) Bioaccumulation is not expected.

Auto-ignition temperature: No information available.

Decomposition temperature: > 190 °C

Viscosity, dynamic: 2,14 mPa.s at 20 °C

Explosive properties: Not classified as explosive.

Oxidizing properties: none

9.2. Other information

Ignition temperature: 300 - 302 °C

Saturated vapour concentration: 8,0 g/m3 at 20 °C

Viscosity, kinematic: 2,14 mm2/s

10. Stability and reactivity

10.1. Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2. Chemical stability

hygroscopic

10.3. Possibility of hazardous reactions

Risk of explosion with:

acetylidene, organic halides, perchlorates, Acid chlorides, nonmetallic halides, iron(III) compounds, nitrates, fluorides, chlorates, hydrides, perchloric acid, Oxides of phosphorus, Nitric acid, silver compounds, silicon compounds, silanes, acid halides

Exothermic reaction with:

boron compounds, oxyhalogenic compounds, Potassium, sodium, Strong oxidizing agents, phosphorus halides, strong reducing agents, Acid chlorides, Strong acids, silver salt, nitrogen dioxide

Risk of ignition or formation of inflammable gases or vapours with:

potassium permanganate

10.4. Conditions to avoid

Strong heating.

10.5. Incompatible materials:

various plastics, Metals

10.6. Hazardous decomposition products:

in the event of fire: See section 5.

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:

LD50 Rat: 28.300 mg/kg

OECD Test Guideline 401

Acute inhalation toxicity:

LC0 Rat: > 5,33 mg/l; 4 h ; dust/mist

OECD Test Guideline 403

Acute dermal toxicity:

LD50 Rat: 40.000 mg/kg

(RTECS)

Skin irritation:

Rabbit

Result: slight irritation

OECD Test Guideline 404

Possible damages: slight irritation

Eye irritation:
Rabbit
Result: slight irritation
OECD Test Guideline 405
Possible damages: slight irritation
Sensitisation:
Maximisation Test Guinea pig
Result: negative
Method: OECD Test Guideline 406
In animal experiments: Mouse
Result: negative
Method: OECD Test Guideline 429
Germ cell mutagenicity:
Genotoxicity in vivo:
Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Rat
male and female
i.p.
Result: negative
Method: OECD Test Guideline 474
Genotoxicity in vitro:
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471
Mutagenicity (mammal cell test):
Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 479
Mutagenicity (mammal cell test): chromosome aberration.:
Result: negative
Method: OECD Test Guideline 473
Carcinogenicity:
No indication of carcinogenic activity. (IUCLID)
Reproductive toxicity:
This information is not available.
Teratogenicity:
Did not show teratogenic effects in animal experiments.
Specific target organ toxicity - single exposure:
This information is not available.
Specific target organ toxicity - repeated exposure:
This information is not available.
Aspiration hazard:
This information is not available.

11.2. Further information
Possible symptoms:

After uptake:

CNS disorders, Nausea, Tiredness, Headache

Damage to:

Liver, Kidney

However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

12. Ecological information

12.1. Toxicity

Toxicity to fish:

static test LC50 Danio rerio (zebra fish): > 25.000 mg/l; 96 h

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:

static test EC50 Daphnia magna (Water flea): 24.600 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae:

static test EC50 Pseudokirchneriella subcapitata (green algae): 17.000 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria:

EC10 Pseudomonas putida: 7.100 mg/l; 16 h

(IUCLID)

EC50 activated sludge: 10 - 100 mg/l; 30 min

(IUCLID)

12.2. Persistence and degradability

Biodegradability

31 %; 28 d; aerobic

OECD Test Guideline 301D

Not readily biodegradable.

12.3. Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -1,35

(experimental)

(Lit.) Bioaccumulation is not expected.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6. Other adverse effects

Additional ecological information:

Discharge into the environment must be avoided.

13. Disposal considerations

13.1. Waste treatment methods

Recommendation:

Chemicals must be disposed of in compliance with the respective national regulations.

Must not be disposed together with household garbage. Do not allow product to reach sewage system

Uncleaned packaging:

Recommendation:

Disposal must be made according to official regulations.

Packagings that may not be cleansed are to be disposed of in the same manner as the product.

Recommended cleansing agents: Water, if necessary together with cleansing agents.

14. Transport information

Land transport (ADR/RID)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

15. Regulatory information

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

EU regulations:

Major Accident Hazard Legislation:

SEVESO III

Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC:

not regulated

Substances of very high concern (SVHC):

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation:

Storage class: 10 - 13

15.2. Chemical safety assessment:

For this product a chemical safety assessment was not carried out.

16. Other information

Training advice:
Provide adequate information, instruction and training for operators.
Labelling:
Signal word:
Warning
Hazard statements:
H227 Combustible liquid.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative