

SAFETY DATA SHEET

Version 9.2
Revision Date 2026.07.22
Print Date 2026.07.23
Date of first issue 2021.03.09
Product Number Millipore - 317275

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Dimethyl Sulfoxide

Product Number 317275

Brand : Millipore
Recommended use of the chemical and restrictions on use : **Identified uses**
Reagent for development and research

Company : 씨그마알드리치코리아(유)
서울특별시 강남구 테헤란로 508,
3층 (대치동, 해성2빌딩)

Sigma-Aldrich Korea
3F Haesung-2-building Teheran-ro 508 Gangnam-gu,
SEOUL 06178
SOUTH KOREA
Telephone : +82 -2-2185-1700
Fax :
Emergency Phone # : 080 880 0468 (CHEMTREC) +82 2 2185
3800 영업시간 - 09:00~18:00, 월요일 -
금요일 (공휴일 제외)

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 4

GHS label elements

Hazard pictograms : Not applicable

Signal word : Warning

Hazard statements : H227 Combustible liquid.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 Store in a well-ventilated place.

Disposal:
P501 Dispose of contents/ container according to waste-related laws

Other hazards which do not result in classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

CAS-No. : 67-68-5

Components

Chemical name	CAS-No.	Concentration (% w/w)
dimethyl sulphoxide	67-68-5	>= 95 - <= 100

4. FIRST AID MEASURES

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

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

If inhaled : After inhalation: fresh air.

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

Most important symptoms and effects, both acute and delayed	: The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

5. FIREFIGHTING MEASURES

Suitable and unsuitable 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.

Specific hazards during fire fighting : Combustible.

Fire may cause evolution of:

Sulphur oxides

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.

Hazardous combustion products : Carbon oxides

Sulphur oxides

Specific extinguishing : Remove container from danger zone and cool with

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

Special protective equipment for fire-fighters	: In the event of fire, wear self-contained breathing apparatus.
--	--

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Advice for non-emergency personnel: Do not breathe vapours, aerosols. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Wear appropriate personal protective equipment, as indicated in Section 8.
---	--

Environmental precautions	: Do not let product enter drains.
---------------------------	------------------------------------

Methods and materials 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.
---	--

7. HANDLING AND STORAGE

For precautions see section 2 GHS label elements

Advice on protection against fire and explosion	: Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
---	--

Further information on storage conditions	: Tightly closed.
---	-------------------

Storage class	: 10, Combustible liquids
---------------	---------------------------

Recommended storage temperature	: Recommended storage temperature see product label.
---------------------------------	--

Further information on storage stability : Recommended storage temperature see product label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : No data available

Personal protective equipment

Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection : required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

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

The entrepreneur 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.

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Safety glasses

Hand protection
Material : Chloroprene
Break through time : 480 min
Glove thickness : 0.65 mm
Protective index : Full contact
Manufacturer : KCL 720 Camapren®

Material : Latex gloves
Break through time : 240 min
Glove thickness : 0.6 mm
Protective index : Splash contact
Manufacturer : Lapren® (KCL 706 / Aldrich Z677558, Size M)

Remarks : 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Hygiene measures : Change contaminated clothing. Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid (20 °C , 1,013 hPa)
Colour	: colourless
Odour	: odourless
Odour Threshold	: No data available
pH	: Not applicable
Melting point/ range	: 18.5 °C (1,013 hPa)
Boiling point/boiling range	: 189 °C (1,013 hPa) Decomposition: yes
Flash point	: 87 °C (1,013 hPa) Method: ASTM D 93, closed cup
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Flammability (liquids)	: No data available
Burning rate	: No data available
Self-ignition	: 300 - 302 °C 1,013 hPa
Upper explosion limit / Upper flammability limit	: 28.5 %(V)
Lower explosion limit / Lower flammability limit	: 2.6 %(V)
Vapour pressure	: 0.55 hPa (20 °C)

Solubility(ies)	
Water solubility	: completely miscible
Relative vapour density	: 2.70 (Air = 1.0)
Relative density	: No data available
Density	: 1.1 g/cm ³ (20 °C)
Partition coefficient: n-octanol/water	: log Pow: -1.35 (20 °C) Bioaccumulation is not expected.
Autoignition temperature	: 300 - 302 °C (1,013 hPa)
Decomposition temperature	: > 190 °C
Viscosity	
Viscosity, dynamic	: 2.14 mPa.s (20 °C)
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available
Oxidizing properties	: none
Surface tension	: 43.5 mN/m, 20 °C
Molecular weight	: 78.13 g/mol
Particle characteristics	
Particle size	: No data available

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	: Reactivity: Forms explosive mixtures with air on intense heating. Reactivity: A range from approx. 15 Kelvin below the flash point is to be rated as critical. Chemical stability: The product is chemically stable under standard ambient conditions (room temperature) . Possibility of hazardous reactions: Risk of explosion with: Possibility of hazardous reactions: 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
 Possibility of hazardous reactions:
 Exothermic reaction with:
 Possibility of hazardous reactions:
 boron compounds
 oxyhalogenic compounds
 Potassium
 sodium
 Strong oxidizing agents
 phosphorus halides
 strong reducing agents
 Acid chlorides
 Strong acids
 silver salt
 nitrogen dioxide
 Possibility of hazardous reactions:
 Risk of ignition or formation of inflammable gases or
 vapours with:
 Possibility of hazardous reactions:
 potassium permanganate

Conditions to avoid	: Strong heating.
Incompatible materials	: No data available
Hazardous decomposition products	: For Hazardous combustion products in the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

No data available

Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity

LD50 Oral - Rat - male and female - 28,300 mg/kg

LC0 Inhalation - Rat - male and female - 4 h - > 5.33 mg/l - dust/mist

LD50 Dermal - Rat - male and female - 40,000 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit - slight irritation - 4 h - OECD Test Guideline 404

Serious eye damage/eye irritation

Eyes - Rabbit - slight irritation - 24 h - OECD Test Guideline 405

Respiratory or skin sensitization

Maximisation Test - Guinea pig - negative - OECD Test Guideline 406

Local lymph node assay (LLNA) - Mouse - negative - OECD Test Guideline 429

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.

Germ cell mutagenicity

Genotoxicity in vitro

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vitro

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 479

Result: negative

Genotoxicity in vitro

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Genotoxicity in vivo

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)

Species: Rat

Application Route: Intraperitoneal

Method: OECD Test Guideline 474

Result: negative

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Signs and Symptoms of Exposure

Exposure to large amounts can cause:, redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness

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

Numerical measures of toxicity

No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 18 Months - No observed adverse effect level - 3,300 mg/kg - Lowest observed adverse effect level - 9,900 mg/kg

Repeated dose toxicity - Monkey - male and female - Dermal - 18 Months - No observed adverse effect level - $\geq 8,910$ mg/kg - Lowest observed adverse effect level - 990 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****dimethyl sulphoxide:**

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): > 25,000 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 24,600 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 17,000 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorgan-	: EC50 (activated sludge): 10 - 100 mg/l

isms

Exposure time: 30 min
Method: ISO 8192

Persistence and degradability

Components:

dimethyl sulphoxide:

Biodegradability : aerobic
Concentration: 2 mg/l
Result: Not readily biodegradable.
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

Stability in water : Degradation half life: 0.12 - 1.2 h (30 °C) pH: 7
Remarks: Hydrolyses readily.

Bioaccumulative potential

Components:

dimethyl sulphoxide:

Partition coefficient: n-octanol/water : log Pow: -1.35 (20 °C)
Remarks: Bioaccumulation is not expected.

Mobility in soil

No data available

Other adverse effects

Components:

dimethyl sulphoxide:

Results of PBT and vPvB assessment : Not persistent, bioaccumulative, and toxic (PBT).

Endocrine disrupting properties

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Disposal precautions

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

Not regulated as a dangerous good

UN/ID No. : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
Packing instruction (cargo aircraft) : Not applicable
Packing instruction (passenger aircraft) : Not applicable

IMDG-Code

Not regulated as a dangerous good

UN number : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
EmS Code : Not applicable
Marine pollutant : no

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Not applicable

15. REGULATORY INFORMATION**National regulatory information****Regulation under the Occupational Safety and Health Act****Harmful Substances Prohibited from Manufacturing**

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Not applicable

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Not applicable

Special Management Materials

Not applicable

Controlled Substances Subject to Environment Monitoring

Not applicable

Controlled Substances Subject to Health Examination

Not applicable

Hazardous Substances Subject to Process Safety Management (PSM) Reporting Obligation

Not applicable

Regulation under the Chemicals Control Act**Chemicals of Acute and Chronic Hazard to Human Health and the Environment****Substances Acutely hazardous to humans**

Not applicable

Substances Chronically hazardous to humans

Not applicable

Substances Hazardous to the environment

Not applicable

Accident Precaution Chemicals

Not applicable

Toxic Release Inventory

Not applicable

Act on Registration and Evaluation of Chemical Substances (K-REACH)**Restricted Chemicals**

Not applicable

Prohibited Chemicals

Not applicable

Substances with Unconfirmed Hazards

Not applicable

Dangerous Substances Safety Management Act

Classification : Group 4, Flammable liquids, Type 3 petroleums, Water soluble liquid

Hazard rank : Hazardous rank III

Designated Quantity : 4000 litre

Safety Warning : Keep away from fire

Wastes Control Act

Industrial general wastes

Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries

16. OTHER INFORMATION

Further information

Issuing date : 2021.03.09

Revision number and date

Number of Revision : 9.2

Revision Date : 2026.07.22

Other information : The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2025 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

Date format : yyyy/mm/dd

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Can-

cer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

KR / EN