SAFETY DATA SHEET (SDS)

in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II — Regulation (EU) 2020/878

Date: 03.11.2026 | Version: 16 | EN

dimethyl sulfoxide

methylsulfinylmethane

CAS 67-68-5

C_2H_6OS | EC 200-664-3

MOLAR MASS	LOGP
78.14	-1.35 (pomiar: Yaws Handbook 2nd ed. (2014))

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HAZARD CLASSIFICATION (GHS / CLP)



Warning

H315 | H319 | H335

Non-harmonised classification (no entry in Annex VI to CLP) — assigned from aggregated ECHA C&L notifications; the H-statements require verification against the official source (ECHA C&L / manufacturer's data sheet).

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

1.1 Substance name	dimethyl sulfoxide
1.1 IUPAC name	methylsulfinylmethane
1.1 CAS number	67-68-5
1.1 EC number	200-664-3
1.1 PubChem CID	679
1.1 InChIKey	IAZDPXIOMUYVGZ-UHFFFAOYSA-N
1.1 SMILES	CS(=O)C
1.1 Molecular formula	C_2H_6OS [7]
1.1 Molar mass	78.14 g/mol [7]
1.1 Exact mass	78.0139 Da [7]

1.2 Uses

For laboratory and research purposes. Not for use in the production of food, medicines or cosmetics without appropriate authorisation.

1.3 Details of the supplier

REFERENCE COPY — NO SUPPLIER DETAILS — NOT FOR DISTRIBUTION	Supplier details are not included in this reference copy. The supplier placing the substance on the market must complete this section and remains responsible for the sheet under REACH. MolGod.org prepares documentation and is not the supplier of this substance.

1.4 Emergency telephone number

Emergency telephone	112 (EU-wide emergency number)

Contact the poison centre designated in the country of placing on the market (CLP Art. 45).

2. Hazards identification

GHS:



PPE:



Warning

Hazard statements (H) [3][4]

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statements (P) [3][4]

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352	IF ON SKIN: Wash with plenty of water
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P321	Specific treatment
P332+P313	If skin irritation occurs: Get medical advice/attention
P337+P313	If eye irritation persists: Get medical advice/attention
P362	Take off contaminated clothing
P403+P233	Store in a well-ventilated place: Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/container to an approved waste collection point

Non-harmonised classification (no entry in Annex VI to CLP) — assigned from aggregated ECHA C&L notifications; the H-statements require verification against the official source (ECHA C&L / manufacturer's data sheet).

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3. Composition/information on ingredients

Substance type	pure substance
CAS Number	67-68-5
EC number	200-664-3
Molecular formula	C_2H_6OS
Concentration	≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification)

4. First aid measures



Inhalation

Move the affected person to fresh air. Keep at rest. If not breathing: artificial respiration (qualified personnel only). [1][2][15]

Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). [1][2][15]

Eye contact

Rinse eyes with running water (min. 15 minutes). Remove contact lenses if possible. If irritation persists — consult an ophthalmologist. [1][2][15]

Ingestion

Do NOT induce vomiting (unless directed by a physician). Rinse mouth with water. Never give anything by mouth to an unconscious person. Emergency number: 112 (EU-wide). Contact the poison centre designated in your country (CLP Art. 45). [1][2][15]

Symptoms and effects

cough, shortness of breath, headache, dizziness; skin redness and irritation; eye irritation and watering. [3]

Notes for physician

Requires verification

Emergency numbers: Emergency: 112 (EU-wide). Poison centre: as designated in the country of placing on the market (CLP Art. 45).

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5. Firefighting measures

Suitable extinguishing media	Adapt extinguishing media to surroundings. CO2, dry powder, foam.
Unsuitable extinguishing media	No specific restrictions.
Specific hazards	Thermal decomposition products: CO, CO2, SOx. [16]
Advice for firefighters	Use self-contained breathing apparatus (SCBA). Full protective suit.
Flash Point	95°C [7]
Flash point note	95 °C (203 °F) — NTP (1992), National Toxicology Program Chemical Repository Database
Auto-ignition temperature	215°C [7]

6. Accidental release measures

Personal precautions	Use personal protective equipment (see Section 8). Avoid breathing vapours. [1][2][15]
Environmental precautions	Prevent entry into sewers, groundwater and surface water. [1][2][15]
Methods for containment and cleaning up	1. Ventilate the room (open windows + exhaust) 2. Put on nitrile gloves (>0.4mm) + protective goggles 3. Sprinkle absorbent (vermiculite/ sand) around the spill 4. Collect from the edges toward the center (do not spread it around!) 5. Place the contaminated absorbent in a sealed PP/HDPE container 6. Wash the area with water and detergent (3×) 7. Wipe dry (cloths → into the waste container) 8. Wash your hands even through the gloves (DMSO penetrates!)
Related sections	8; 13
Large spill	1. EVACUATE personnel not involved in the cleanup (>5m) 2. Ventilate intensively (>30 min) 3. Put on full PPE: nitrile gloves + chemical-resistant suit + goggles + P2 respirator (if vapors) 4. Contain the spill (use absorbent barriers/pillows) 5. Do not let it reach the sewer/soil (use barriers) 6. Collect mechanically (with a vacuum pump into a UN drum) 7. Sprinkle absorbent over the residues (vermiculite 50L/m²) 8. Collect with a shovel/broom into a 200L UN container 9. Rinse the area with water (for recovery!) 3× 10. Report the incident to the OHS manager + record it in the register
Absorbent	vermiculite
HAZMAT response required	Yes
Required PPE	Gloves: nitrile (>0.4mm); Safety goggles: Yes; Respiratory protection: not required unless vapors; Protective clothing: lab coat; Protective footwear: closed toe shoes

7. Handling and storage

Precautions	Work in a fume hood or with adequate ventilation. No eating, drinking or smoking in the work area. [1][2][15]
Storage temperature	Store at temperature: 20-25°C (temperatura pokojowa). [1][2][15]
Humidity	Store in a dry place (<60% RH). [1][2][15]
Light	Protect from direct sunlight. [1][2][15]

Solidifies below 18.45 °C. Check the physical state before use.

Incompatible materials	Strong oxidizers. [16]

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8. Exposure controls/personal protection

8.1 Control parameters

OEL — NDS (Poland)	No NDS (OEL) value in the available working list — verify in the current MRPiPS regulation before use; do not assume the absence of a limit value.
OEL (EU)	The EU OEL value has not been verified against the available dataset — check the IOELV/BOELV directives; do not assume the absence of a value.
GESTIS MAK (DE)	GESTIS MAK (DE): 500 ppm / 2000 mg/m³ — GESTIS/DGUV Deutschland MAK-Wert
DNEL	No data available.
PNEC	No data available.

WARNING — SKIN PENETRATION: DMSO readily penetrates the skin and increases the absorption of other substances (Marren 2011, doi:10.3810/psm.2011.09.1923). Select gloves based on the manufacturer's breakthrough-time data (EN ISO 374-1).

8.2 Personal protective equipment (PPE) [5][6][17]



Chemical-resistant protective gloves
EN ISO 374-1:2016+A1:2018
nitrile (>0.4mm)

Closed safety spectacles or goggles
EN ISO 16321-1:2022 / EN 166:2001

Respiratory protection
EN 14387:2004+A1:2008
type A2 filter (organic vapours)

Closed safety footwear with toe protection
EN ISO 20345:2022 (S2/S3)

9. Physical and chemical properties

NOTE: The substance may solidify below 18.4°C.

Property (item 9.1)	Value	Source
Physical state	ciecz (bezbarwna, oleista)	
Colour	bezbarwna	
Odour	slightly garlic-like, faint	
pH (1% aqueous solution)	No data available.	
Melting point	18.45°C (The Merck Index, 15th ed. (2013)) [8] [7]	
Boiling point	189°C (The Merck Index, 15th ed. (2013)) [8] [7]	
Flash point	95 °C (203 °F) – NTP (1992), National Toxicology Program Chemical Repository Database [7]	
Flammability	No data available.	
Lower and upper explosion limit	No data available.	
Density (20°C)	1.1 g/cm³ (20 °C – The Merck Index, 15th ed. (2013)) [7]	
Vapour pressure	0.056 kPa (0.42 mmHg, 20 °C) – Verschueren, Handbook of Environmental Data on Organic Chemicals, 4th ed. (2001), p. 941 [7]	

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Property (item 9.1)	Value	Source
Relative vapour density	2.70 [21]	
Dynamic viscosity	2.47 mPa·s [7]	
Kinematic viscosity	No data available.	
Refractive index nD²⁰	1.4783 (experimental data) [7]	
Auto-ignition temperature	215°C (experimental data) [7]	
Decomposition temperature	Not applicable	
Surface Tension	43.54 mN/m [9]	
Water solubility	Miscible with water in all proportions. [9]	
Particle characteristics	Not applicable (REACH 9.1(r))	
log Kow (XLogP3)	-1.35 [7] (Hansch, Leo, Hoekman, Exploring QSAR (1995))	
Molar mass	78.14 g/mol [7]	
Molecular formula	C_2H_6OS [7]	
Lipinski rule (RO5)	PASS	
Skin penetration	YES — this substance carries other chemicals through the skin!	

Where a property above reads "No data available", no measured value was found in the public sources consulted for this substance. The property has not been determined by MolGod.org and no value is inferred. "Not applicable" means the property has no meaning for this substance in the form supplied.

10. Stability and reactivity

Reactivity	Stable under normal storage and handling conditions.
Chemical stability	Thermally stable under recommended conditions.
Hazardous reactions	No hazardous reactions known under normal conditions.
Conditions to avoid	High temperatures, direct sunlight, moisture.
Incompatible materials	Strong oxidizers.
Decomposition products	Thermal decomposition products: CO, CO2, SOx.

11. Toxicological information

LD50 (oral)	17.9 mL/kg (≈ 19.7 g/kg) (rat) [10]
LD50 (dermal)	No data available.
LC50 (inhalation)	No data available.
Skin irritation	Category 2 — skin irritation.
Eye irritation	Category 2 — eye irritation.
Sensitisation	No data available.
Mutagenicity	No data available.
Carcinogenicity	No data available.
IARC classification (carcinogenicity)	No individual IARC monograph for this CAS — this is not confirmation of the absence of carcinogenicity (cf. CLP/GHS classification in section 2).
Reproductive toxicity	No data available.
Other information	Low acute toxicity. DMSO enhances the penetration of other substances through the skin (Marren 2011, doi:10.3810/psm.2011.09.1923).

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STOT — single exposure	Category 3 (H335): May cause respiratory irritation. [3]
STOT — repeated exposure	No data available.
Aspiration hazard	No data available.

12. Ecological information

Aquatic toxicity	LC_{50} (fish, 96h): 33500 mg/L (Pimephales promelas, 96h). EC_{50} (Daphnia): 27500 mg/L (Daphnia magna, 48h). IC_{50} (algae): >10000 mg/L (Scenedesmus subspicatus, 72h)
Persistence / biodegradability	Readily biodegradable (OECD 301F). Natural metabolite present in soils.
Bioaccumulative potential	log Kow = -1.35 [7]. Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). [18][19] BCF: Does not bioaccumulate (logKow=-1.35, BCF<1).
Mobility in soil	No data available.
PBT/vPvB assessment	Does not meet PBT/vPvB criteria
Endocrine disrupting properties	Reported endocrine effects in aquatic organisms (ecotoxicological data, US EPA ECOTOX; not a regulatory ED classification under 2018/605). [20]

13. Disposal considerations

Disposal method	Incineration in an authorized hazardous waste incineration plant with energy recovery. Temperature >800°C, flue gas cleaning (SOx scrubber required — DMSO contains sulfur).
Waste code (EWC)	07 01 04* — Inne rozpuszczalniki organiczne, roztwory z przemywania i ciecze macierzyste [14]
Packaging	Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.
Licensed waste contractors (PL)	SARP-EKO (BDO 000028916); Remondis Polska; Mo-BRUK
BDO required	Yes

14. Transport information

UN number	Not assigned [12]
Proper shipping name	Not classified as a dangerous material for transport (ADR/IMDG/IATA) [12]
Environmental hazard	Environmental hazard for transport: not verified. Non-harmonised classification (outside CLP Annex VI) — verify aquatic toxicity (Section 12) and do NOT assume marine pollutant marking is not required; confirm per ADR 2.2.9 / IMDG before shipping.
Special precautions	Handle as dangerous goods according to the assigned class (ADR/IMDG/IATA); apply the precautions appropriate to that class.
CN/HS code	2930 90 98 (Other organic sulfur compounds) [13]
Notes	DMSO not classified — does not require UN packaging or ADR labelling. CLP classification only (H315/H319/H335).
Marine pollutant	No
Environmentally hazardous (mark: fish and tree)	No

15. Regulatory information

SVHC status	SVHC status not verified against the available dataset — check the current ECHA Candidate List; do not assume absence. [1]
REACH Annex XIV	Not verified against the ECHA Authorisation List — check REACH Annex XIV. [1]

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REACH Annex XVII	Not confirmed in the available Annex XVII dataset — verify against the current ECHA list before placing on the market; do not assume absence of restriction. [1]
EC number type	EINECS
REACH registration number	01-2119468814-32-XXXX (the last part of the number is confidential — the full number is held by the registrant; verify with ECHA)
Index number (CLP Annex VI)	No (notified classification, not harmonised)
Harmonised classification	No (CLP self-classification — most notifiers: H315+H319+H335)
IARC classification (carcinogenicity)	Not classified by IARC
OEL — Journal of Laws (Poland)	Dz.U. 2024 poz. 1017 (NDS 150 mg/m³, NDSCh 300 mg/m³)
Svhc status	No
Us tsca	Active on TSCA Inventory
Japan enchcs	Listed (MITI No. 3-381)

16. Other information

Legal status of classification: supplier self-classification under Art. 4(3) CLP — no harmonised entry in Annex VI.Entries with an entry-into-force date after 03.11.2026 were omitted as future (not yet applicable).

Data aggregated automatically from public reference databases (PubChem, ECHA, NIST and others).

Scientific citations (4)

Dimethyl Sulfoxide.. (2006).

Kearney H, Rak-Raszewska A, Seijas-Gamardo A et al.. *Dimethyl Sulfoxide Conditions Induced Pluripotent Stem Cells for more Efficient Nephron Progenitor and Kidney Organoid Differentiation.*. Stem cell reviews and reports (2025). DOI: 10.1007/s12015-025-10971-z

J. S. Tranquillo, G. Fred Lee. *Concentration of dilute aqueous phenol solutions utilizing methylsulfinylmethane (DMSO)*. Environmental Science & Technology (1969). DOI: 10.1021/es60027a002

Fu Y, Zhang J, Yang C et al.. *Effects of Solvent Dimethyl Sulfoxide Invites a Rethink of Its Application in Amyloid Beta Cytotoxicity.*. International journal of toxicology (2025). DOI: 10.1177/10915818251338235

Full text of H statements

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Full text of P statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352	IF ON SKIN: Wash with plenty of water
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P321	Specific treatment
P332+P313	If skin irritation occurs: Get medical advice/attention
P337+P313	If eye irritation persists: Get medical advice/attention
P362	Take off contaminated clothing
P403+P233	Store in a well-ventilated place: Keep container tightly closed
P405	Store locked up

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P501	Dispose of contents/container to an approved waste collection point

Abbreviations

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging (Reg. (EC) 1272/2008)
CMR	Carcinogenic, Mutagenic, toxic to Reproduction
DNEL	Derived No-Effect Level
EC	European Community number
EPI	Personal protective equipment
GHS	Globally Harmonized System
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
SDS	Safety Data Sheet
LC50	Lethal Concentration, 50%
LD50	Lethal Dose, 50%
NDS	Maximum admissible concentration (workplace, PL)
NDSCh	Short-term exposure limit (PL)
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Reg. (EC) 1907/2006)
STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
TPSA	Topological Polar Surface Area
vPvB	very Persistent and very Bioaccumulative

Version history

v16 (03.11.2026)	Based on supplier self-classification (ECHA C&L notifications; no harmonised entry in Annex VI).

References

[1] EP and Council. Reg.(EC) No 1907/2006 (REACH). Art.31, Annex II. OJ EU L 396/2006. URL: https://eur-lex.europa.eu/eli/reg/2006/1907/oj Accessed: 2026-11-03.

[2] European Commission. Reg.(EU) 2020/878 — amending Annex II REACH. OJ EU L 203/2020. From 01.01.2023. URL: https://eur-lex.europa.eu/eli/reg/2020/878/oj Accessed: 2026-11-03.

[3] EP and Council. Reg.(EC) 1272/2008 (CLP) + ATP 23. OJ EU L 353/2008. (2026-07-07) URL: https://eur-lex.europa.eu/eli/reg/2008/1272/oj Accessed: 2026-11-03.

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[5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: https://www.iso.org/standard/72424.html Accessed: 2026-11-03.

[6] ISO. ISO 3864-1:2011 — Safety colours and safety signs. URL: https://www.iso.org/standard/51021.html Accessed: 2026-11-03.

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[10] O'Neil, M.J., ed. The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals. 15th ed. Cambridge: Royal Society of Chemistry, 2013.

[11] ECHA. REACH Registration Dossier (registered substance, acute toxicity study record). Helsinki: European Chemicals Agency. URL: https://echa.europa.eu/registration-dossier

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[13] European Commission. Combined Nomenclature (Council Regulation (EEC) No 2658/87). Chapter 29. OJ EU L 256. URL: https://eur-lex.europa.eu/eli/reg/1987/2658/oj

[14] European Commission. Decision 2000/532/EC establishing a list of wastes (European Waste Catalogue). OJ EU L 226/3. URL: https://eur-lex.europa.eu/eli/dec/2000/532/oj

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[15] European Chemicals Agency (ECHA). Guidance on the Compilation of Safety Data Sheets. Version 4.0. Helsinki: European Chemicals Agency, 2020. URL: https://echa.europa.eu/documents/10162/2324906/sds_en.pdf

[16] Urben, P.G., ed. Bretherick's Handbook of Reactive Chemical Hazards. 8th ed. Oxford: Academic Press.

[17] CEN. Personal protective equipment standards (EN ISO 374-1, EN 166, EN 149, EN 14387, EN ISO 20345). Brussels: European Committee for Standardization.

[18] ECHA. Guidance on Information Requirements and Chemical Safety Assessment, Chapter R.11: PBT/vPvB Assessment. Helsinki: European Chemicals Agency. URL: https://echa.europa.eu/guidance-documents/guidance-on-information-requirements-and-chemical-safety-assessment

[19] European Parliament and Council. Regulation (EC) No 1907/2006 (REACH), Annex XIII — Criteria for the identification of PBT and vPvB substances. OJ EU L 396/2006 (consolidated). URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006R1907-20140410

[20] U.S. EPA. ECOTOX Knowledgebase. Washington, DC: U.S. Environmental Protection Agency. URL: https://cfpub.epa.gov/ecotox/

[21] MOL-GOD. Value obtained by calculation from the molecular formula/molecular weight (the specific quantity and its formula are indicated at the respective field). Calculated value, not an experimental measurement. URL: https://www.nist.gov/pml/atomic-weights-and-isotopic-compositions-relative-atomic-masses

[22] MRiPS Regulation of 12.06.2018 — NDS/NDN. Journal of Laws 2024 item 1017. URL: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20240001017 Accessed: 2026-11-03.

External links

NIST: https://webbook.nist.gov/cgi/cbook.cgi?ID=67-68-5

ChEMBL: https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL504

NFPA 704 (supplementary information — NFPA/USA system; not a required element of an EU safety data sheet under REACH Annex II)



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