SAFETY DATA SHEET (SDS)

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

Date: 10.11.2026 | Version: 8 | EN

methanol

methanol

CAS 67-56-1

CH_4O | EC 200-659-6

MOLAR MASS	LOGP
32.04	-0.77

HAZARD CLASSIFICATION (GHS / CLP)



Danger

H225 | H331 | H311 | H301 | H370

Hazard class scope limited to the harmonised classification (CLP Annex VI); classes outside the harmonised entry may require supplier self-classification (CLP Art. 4(3)) — verify with the supplier safety data sheet.

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

1.1 Substance name	methanol
1.1 IUPAC name	methanol
1.1 CAS number	67-56-1
1.1 EC number	200-659-6
1.1 PubChem CID	887
1.1 InChIKey	OKKJLVBELUTLKV-UHFFFAOYSA-N
1.1 SMILES	CO
1.1 Molecular formula	CH_4O [7]
1.1 Molar mass	32.042 g/mol [7]
1.1 Exact mass	32.0262 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:



Prohibitions:



Danger

Hazard statements (H) [3][4][12]

H225	Highly flammable liquid and vapour
H331	Toxic if inhaled
H311	Toxic in contact with skin
H301	Toxic if swallowed
H370	Causes damage to organs

Precautionary statements (P) [3][4][12]

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233	Keep container tightly closed
P240	Ground and bond container and receiving equipment
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352	IF ON SKIN: Wash with plenty of water
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician
P311	Call a POISON CENTER or doctor/physician
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P321	Specific treatment
P330	Rinse mouth
P370+P378	In case of fire: Use appropriate media to extinguish
P403+P235	Store in a well-ventilated place: Keep cool

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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

Hazard class scope limited to the harmonised classification (CLP Annex VI); classes outside the harmonised entry may require supplier self-classification (CLP Art. 4(3)) — verify with the supplier safety data sheet.

3. Composition/information on ingredients

Substance type	pure substance
CAS Number	67-56-1
EC number	200-659-6
Molecular formula	CH_4O
Concentration	≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification)
Clp index no	603-001-00-X
Specific concentration limits / M-factor (CLP Annex VI Table 3)	SCL: H370: C≥10 %; H371: 3 % ≤ C<10 % [3]

4. First aid measures



Inhalation

Move the affected person to fresh air. Keep at rest. Call a physician. Semi-sitting position. Give oxygen if available. If not breathing: artificial respiration (qualified personnel only). [1][2][17]

Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). Call a physician immediately. [1][2][17]

Eye contact

Rinse eyes with running water (min. 15 minutes). Remove contact lenses if possible. If irritation persists — consult an ophthalmologist. [1][2][17]

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][17]

Symptoms and effects

nausea, vomiting, diarrhoea; cough, shortness of breath, headache, dizziness. [3][12]

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	Alcohol-resistant foam, carbon dioxide (CO_2), dry chemical powder, water spray/mist. [1][2][17]
Unsuitable extinguishing media	Full/compact water jet (splashes and spreads the burning liquid, which floats on water). [1][2][17]
Specific hazards	Thermal decomposition products: CO, CO2. [18]
Advice for firefighters	Use self-contained breathing apparatus (SCBA). Full protective suit. [1][2][17]
Flash Point	9°C [7]
Auto-ignition temperature	463.9°C [7]

6. Accidental release measures

Personal precautions	Use personal protective equipment (see Section 8). Avoid breathing vapours. [1][2][17]
Environmental precautions	Prevent entry into sewers, groundwater and surface water. [1][2][17]
Methods for containment and cleaning up	Contain the spill with a barrier. Absorb with inert material (sand, vermiculite, diatomaceous earth). Collect into sealed, labelled containers. Do not release into drains. Remove ignition sources; use non-sparking tools. [1][2][17]
Related sections	8; 13

7. Handling and storage

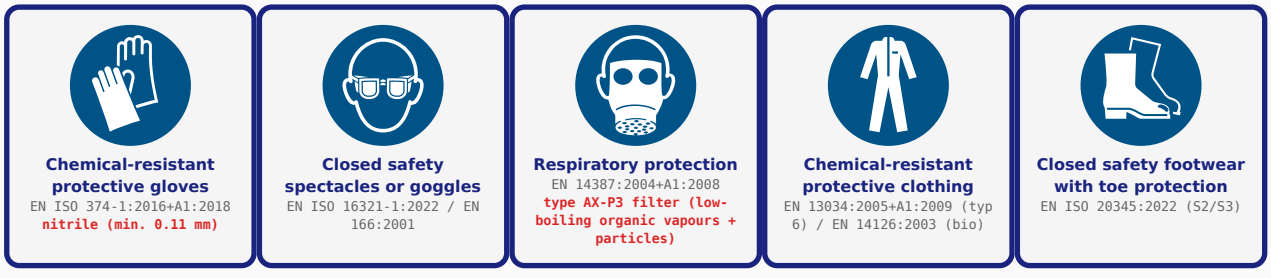
Precautions	Work in a fume hood or with adequate ventilation. No eating, drinking or smoking in the work area. [1][2][17]
Storage temperature	Store at room temperature (15-25°C) or as indicated on the label. [1][2][17]
Humidity	Store in a dry place (<60% RH). [1][2][17]
Light	Protect from direct sunlight. [1][2][17]
Incompatible materials	Strong oxidizers, Ignition sources, open flames. [18]

8. Exposure controls/personal protection

8.1 Control parameters

OEL — NDS (Poland)	NDS = 100 mg/m³ (TWA) · NDSCh = 300 mg/m³ (STEL) — Rozp. MRiPS Dz.U. 2024 poz.1017 [28]
OEL (EU)	OEL-TWA: 200 ppm (260 mg/m³) — IOELV 2006/15/EC — “skin” notation [13]
DNEL	No data available.
PNEC	No data available.

8.2 Personal protective equipment (PPE) [5][6][19]



9. Physical and chemical properties

Property (item 9.1)	Value	Source
Physical state	Liquid	

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Property (item 9.1)	Value	Source
Colour	Colorless liquid [7]	
Odour	Slight alcoholic odor when pure; repulsive, pungent odor when crude [7]	
pH (1% aqueous solution)	No data available.	
Melting point	-97.53°C [8] [7][24][26][27]	
Boiling point	64.7°C [8] [7][24][26][27]	
Flash point	9°C [7][24]	
Flammability	Flam. Liq. 2 (H225) [3][12]	
Lower and upper explosion limit	6–50 % obj. [24]	
Density (20°C)	0.792 g/cm³ [7][24][26][27]	
Vapour pressure	12.266 kPa (92 mmHg, 20°C) [7][24]	
Relative vapour density	1.11 [23]	
Dynamic viscosity	0.544 mPa·s [7]	
Kinematic viscosity	No data available.	
Refractive index nD^{20}	1.3292 (experimental data) [7]	
Auto-ignition temperature	463.9°C (experimental data) [7]	
Decomposition temperature	Not applicable	
Surface Tension	22.5 mN/m [9]	
Water solubility	Miscible with water in all proportions.	
Particle characteristics	Not applicable (REACH 9.1(r))	
Partition coefficient n-octanol/water (log value)	-0.77 [7][25][26][27]	
Molar mass	32.042 g/mol [7]	
Molecular formula	CH_4O [7]	
Lipinski rule (RO5)	PASS	

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, Ignition sources, open flames.
Decomposition products	Thermal decomposition products: CO, CO2.

11. Toxicological information

LD50 (oral)	5628 mg/kg (rat) [10][11]
LD50 (dermal)	No data available.

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LC50 (inhalation)	No data available.
Skin irritation	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
Eye irritation	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
Sensitisation	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
Mutagenicity	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
Carcinogenicity	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
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	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
STOT — single exposure	Category 1 (H370): Causes damage to organs. [3][12]
STOT — repeated exposure	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]
Aspiration hazard	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][12]

12. Ecological information

Aquatic toxicity	LC_{50} (fish): 290 mg/L (Danio rerio, 96 h). EC_{50} (Daphnia): 22200 mg/L (Daphnia obtusa, 48 h). EC_{50} (algae): 16.9 mg/L (Ulva pertusa, 96 h) [22]
Persistence / biodegradability	No data available.
Bioaccumulative potential	log Kow = -0.77. Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). [20][21]
Mobility in soil	No data available.
PBT/vPvB assessment	Insufficient data to assess PBT/vPvB.
Endocrine disrupting properties	Reported endocrine effects in aquatic organisms (ecotoxicological data, US EPA ECOTOX; not a regulatory ED classification under 2018/605). [22]

13. Disposal considerations

Disposal method	Hand over for disposal to licensed contractors in accordance with national and local regulations. Do not discharge into sewers.
Waste code (EWC)	16 05 06* — Laboratory and analytical chemicals (e.g. chemical reagents) containing hazardous substances. Verification of the EWC code required. [16]
Packaging	Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.

14. Transport information



Class 3 — Flammable liquids



Class 6.1 — Toxic substances

UN number	UN 1230 [15]
Proper shipping name	METANOL [15]
Transport hazard class	3 — Flammable liquids (+ 6.1 subsidiary hazard) [15]
Packing Group	II [15]

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Environmental hazard	Not classified as environmentally hazardous for transport (no H400/H410/H411 in CLP Annex VI; no marine pollutant mark required) [3]
Special precautions	Handle as dangerous goods according to the assigned class (ADR/IMDG/IATA); apply the precautions appropriate to that class.
CN/HS code	CN/HS code: verification required in the Eurostat Combined Nomenclature.
Notes	Dangerous goods. Toxic if inhaled/swallowed.
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]
REACH Annex XVII	Subject to REACH restriction Annex XVII (entry 69): Methanol — restriction on placing on the market for the general public in windscreen washer fluids and defrosters at a concentration >= 0.6% by weight. [1]

16. Other information

Legal status of classification: harmonised under CLP Annex VI — Reg. (EC) No 1272/2008 (as at the date of issue).Entries with an entry-into-force date after 10.11.2026 were omitted as future (not yet applicable).

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

Scientific citations (2)

et al.. *Suicide attempt using pure methanol with hospitalization of the patient soon after ingestion: case report.*. (2009). DOI: 10.1590/s1516-31802009000200011

Zang X, Yang Y, Zhan C et al.. *Methanol metabolism in synthetic methylotrophic microorganisms.*. Biotechnology advances (2025). DOI: 10.1016/j.biotechadv.2025.108623

Full text of H statements

H225	Highly flammable liquid and vapour
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Full text of P statements

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P312	Call a POISON CENTER or doctor/physician if you feel unwell
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P330	Rinse mouth
P370+P378	In case of fire: Use appropriate media to extinguish
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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

v8 (10.11.2026)	Based on ECHA harmonised classification (Annex VI to CLP, ATP 23).

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: 2026-11-10.

[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: 2026-11-10.

[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: 2026-11-10.

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[5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: https://www.iso.org/standard/72424.html Accessed: 2026-11-10.

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[7] PubChem. National Center for Biotechnology Information (NIH/NLM), chemical compound database. URL: https://pubchem.ncbi.nlm.nih.gov/compound/887

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[9] Reid, R.C., Prausnitz, J.M., Poling, B.E. The Properties of Gases and Liquids. 4th ed. New York: McGraw-Hill, 1987.

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[13] European Commission. Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values. OJ EU L 38/36. URL: https://eur-lex.europa.eu/eli/dir/2006/15/oj

[14] 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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[16] 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

[17] 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

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

[23] 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

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[27] OCHEM. Online Chemical Modeling Environment - experimental physicochemical property database compiled from peer-reviewed literature. Edited by I. Sushko et al. URL: https://ochem.eu

[28] 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: 2026-11-10.

External links

NIST: https://webbook.nist.gov/cgi/cbook.cgi?ID=67-56-1

ChEMBL: https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL14688

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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Author: www.MolGod.org — platform for automated safety data sheets (SDS).
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