

## SAFETY DATA SHEET (SDS)

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

Date: 07.09.2026 | Version: 2 | EN

## tetrahydrofuran

oxolane

CAS 109-99-9

C<sub>4</sub>H<sub>8</sub>O

EC 203-726-8

MOLAR MASS  
72.11LOGP  
0.46

## HAZARD CLASSIFICATION (GHS / CLP)



Danger

H225 H319 H335 H351 EUH019

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    | tetrahydrofuran                                |
| 1.1 IUPAC name        | oxolane                                        |
| 1.1 CAS number        | 109-99-9                                       |
| 1.1 EC number         | 203-726-8                                      |
| 1.1 PubChem CID       | 8028                                           |
| 1.1 InChIKey          | WYURNTSHIVDZCO-UHFFFAOYSA-N                    |
| 1.1 SMILES            | C1CCOC1                                        |
| 1.1 Molecular formula | C <sub>4</sub> H <sub>8</sub> O <sup>[7]</sup> |
| 1.1 Molar mass        | 72.11 g/mol <sup>[7]</sup>                     |
| 1.1 Exact mass        | 72.0575 Da <sup>[7]</sup>                      |

## 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



**Danger**

### Hazard statements (H) [3][4][10]

|               |                                    |
|---------------|------------------------------------|
| <b>H225</b>   | Highly flammable liquid and vapour |
| <b>H351</b>   | Suspected of causing cancer        |
| <b>H335</b>   | May cause respiratory irritation   |
| <b>H319</b>   | Causes serious eye irritation      |
| <b>EUH019</b> | May form explosive peroxides.      |

### Precautionary statements (P) [3][4][10]

|                       |                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>P201</b>           | Obtain special instructions before use                                                                                          |
| <b>P202</b>           | Do not handle until all safety precautions have been read and understood                                                        |
| <b>P210</b>           | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking                                   |
| <b>P233</b>           | Keep container tightly closed                                                                                                   |
| <b>P240</b>           | Ground and bond container and receiving equipment                                                                               |
| <b>P261</b>           | Avoid breathing dust/fume/gas/mist/vapours/spray                                                                                |
| <b>P264</b>           | Wash thoroughly after handling                                                                                                  |
| <b>P271</b>           | Use only outdoors or in a well-ventilated area                                                                                  |
| <b>P280</b>           | Wear protective gloves/protective clothing/eye protection/face protection                                                       |
| <b>P303+P361+P353</b> | IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower                           |
| <b>P304+P340</b>      | IF INHALED: Remove person to fresh air and keep comfortable for breathing                                                       |
| <b>P305+P351+P338</b> | IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing |
| <b>P308+P313</b>      | IF exposed or concerned: Get medical advice/attention                                                                           |
| <b>P312</b>           | Call a POISON CENTER or doctor/physician if you feel unwell                                                                     |
| <b>P337+P313</b>      | If eye irritation persists: Get medical advice/attention                                                                        |
| <b>P370+P378</b>      | In case of fire: Use appropriate media to extinguish                                                                            |
| <b>P403+P235</b>      | Store in a well-ventilated place: Keep cool                                                                                     |
| <b>P403+P233</b>      | Store in a well-ventilated place: Keep container tightly closed                                                                 |
| <b>P405</b>           | Store locked up                                                                                                                 |

**NOTE: CMR substance — employment of pregnant and breastfeeding women in work harmful to health is prohibited (Polish Labour Code Art. 176 § 1; Council of Ministers Regulation of 3 April 2017, Journal of Laws 2017 item 796).** <sup>[17][18]</sup>

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                                                          | 109-99-9                                                                              |
| EC number                                                           | 203-726-8                                                                             |
| Molecular formula                                                   | C <sub>4</sub> H <sub>8</sub> O                                                       |
| Concentration                                                       | ≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification) |
| Clp index no                                                        | 603-025-00-0                                                                          |
| Specyficzne stężenia graniczne / M-współczynnik (CLP Zał. VI Tab.3) | SCL: H335: C≥25 %; H319: C ≥ 25 % <sup>[3]</sup>                                      |

### 4. First aid measures



#### Inhalation

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

#### Skin contact

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

#### Eye contact

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

#### 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). <sup>[1][2][15]</sup>

#### Symptoms and effects

cough, shortness of breath, headache, dizziness; eye irritation and watering. <sup>[3][10]</sup>

#### 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).**

## 5. Firefighting measures

|                                       |                                                                                                                         |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable extinguishing media</b>   | Alcohol-resistant foam, carbon dioxide (CO <sub>2</sub> ), dry chemical powder, water spray/mist. <sup>[1][2][15]</sup> |
| <b>Unsuitable extinguishing media</b> | Full/compact water jet (splashes and spreads the burning liquid, which floats on water). <sup>[1][2][15]</sup>          |
| <b>Specific hazards</b>               | Thermal decomposition products: CO, CO <sub>2</sub> . <sup>[16]</sup>                                                   |
| <b>Advice for firefighters</b>        | Use self-contained breathing apparatus (SCBA). Full protective suit. <sup>[1][2][15]</sup>                              |
| <b>Flash Point</b>                    | -14°C                                                                                                                   |
| <b>Auto-ignition temperature</b>      | 321°C                                                                                                                   |

## 6. Accidental release measures

|                                                |                                                                                                                                                                                                                                                    |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b>                    | Use personal protective equipment (see Section 8). Avoid breathing vapours. <sup>[1][2][15]</sup>                                                                                                                                                  |
| <b>Environmental precautions</b>               | Prevent entry into sewers, groundwater and surface water. <sup>[1][2][15]</sup>                                                                                                                                                                    |
| <b>Methods for containment and cleaning up</b> | 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. <sup>[1][2][15]</sup> |
| <b>Related sections</b>                        | 8; 13                                                                                                                                                                                                                                              |

## 7. Handling and storage

|                               |                                                                                                                          |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Precautions</b>            | Work in a fume hood or with adequate ventilation. No eating, drinking or smoking in the work area. <sup>[1][2][15]</sup> |
| <b>Storage temperature</b>    | Store at room temperature (15-25°C) or as indicated on the label. <sup>[1][2][15]</sup>                                  |
| <b>Humidity</b>               | Store in a dry place (<60% RH). <sup>[1][2][15]</sup>                                                                    |
| <b>Light</b>                  | Protect from direct sunlight. <sup>[1][2][15]</sup>                                                                      |
| <b>Incompatible materials</b> | Strong oxidizers, Ignition sources, open flames. <sup>[16]</sup>                                                         |

## 8. Exposure controls/personal protection

### 8.1 Control parameters

|                           |                                                                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OEL — NDS (Poland)</b> | NDS = 150 mg/m <sup>3</sup> (TWA) · NDSch = 300 mg/m <sup>3</sup> (STEL) — Rozp. MRiPS Dz.U. 2024 poz.1017 <sup>[29]</sup>                 |
| <b>OEL (EU)</b>           | OEL-TWA: 50 ppm (150 mg/m <sup>3</sup> ) · OEL-STEL: 100 ppm (300 mg/m <sup>3</sup> ) — IOELV 2000/39/EC — "skin" notation <sup>[11]</sup> |
| <b>DNEL</b>               | No data available.                                                                                                                         |
| <b>PNEC</b>               | No data available.                                                                                                                         |

### 8.2 Personal protective equipment (PPE) <sup>[5][6][19]</sup>



**Chemical-resistant protective gloves**  
EN ISO 374-1:2016+A1:2018  
nitrile (min. 0.11 mm)



**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

| Property (item 9.1)   | Value  | Source |
|-----------------------|--------|--------|
| <b>Physical state</b> | Liquid |        |

| Property (item 9.1)                               | Value                                                        | Source |
|---------------------------------------------------|--------------------------------------------------------------|--------|
| Colour                                            | No data available.                                           |        |
| Odour                                             | No data available.                                           |        |
| pH (1% aqueous solution)                          | No data available.                                           |        |
| Melting point                                     | -108.4°C [7][8][25][27][28]                                  |        |
| Boiling point                                     | 65.9°C (experimental data) [7][8][27][28]                    |        |
| Flash point                                       | -14°C (experimental data) [7][27][28]                        |        |
| Flammability                                      | Flam. Liq. 2 (H225) [3][10]                                  |        |
| Lower and upper explosion limit                   | 1.5–12.4 % obj. [25]                                         |        |
| Density (20°C)                                    | 0.889 g/cm <sup>3</sup> [7][9][25][27][28]                   |        |
| Vapour pressure                                   | 21.6 kPa (162 mmHg, 25°C) (experimental data) [7][9][27][28] |        |
| Relative vapour density                           | 2.49 [24]                                                    |        |
| Dynamic viscosity                                 | 0.456 mPa·s [9]                                              |        |
| Kinematic viscosity                               | No data available.                                           |        |
| Refractive index n <sub>D</sub> <sup>20</sup>     | 1.407                                                        |        |
| Auto-ignition temperature                         | 321°C                                                        |        |
| Decomposition temperature                         | Not applicable                                               |        |
| Surface Tension                                   | 26.4 mN/m [9]                                                |        |
| Rozpuszcz. w wodzie                               | Miscible with water in all proportions.                      |        |
| Particle characteristics                          | Not applicable (REACH 9.1(r))                                |        |
| Partition coefficient n-octanol/water (log value) | 0.46 [7][26][27][28]                                         |        |
| Molar mass                                        | 72.11 g/mol [7]                                              |        |
| Molecular formula                                 | C <sub>4</sub> H <sub>8</sub> O [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             | Reaktywny — tworzy nadtlutki (patrz niebezpieczne reakcje). [16]                                                                                                                                                                                       |
| Chemical stability     | May form unstable, explosive organic peroxides during storage (contact with air/light, after opening the container). [16]                                                                                                                              |
| Hazardous reactions    | Formation of explosive peroxides (EUH019). Concentration of peroxides during distillation/evaporation to dryness risks explosion. Check for the presence of peroxides before use/distillation; store under inhibitor, protect from light and air. [16] |
| Conditions to avoid    | Contact with air and light, prolonged storage, evaporation to dryness. [16]                                                                                                                                                                            |
| Incompatible materials | Strong oxidizers, Ignition sources, open flames.                                                                                                                                                                                                       |
| Decomposition products | Thermal decomposition products: CO, CO <sub>2</sub> .                                                                                                                                                                                                  |

## 11. Toxicological information

|                                              |                                                                                                                                                             |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LD50 (oral)</b>                           | No data available.                                                                                                                                          |
| <b>LD50 (dermal)</b>                         | No data available.                                                                                                                                          |
| <b>LC50 (inhalation)</b>                     | LC50 21000 ppm (3 h); 80975 ppm (1 h); 62000 ppm (2 h); 18000–22000 ppm (4 h) (rat) <sup>[7]</sup>                                                          |
| <b>Skin irritation</b>                       | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |
| <b>Eye irritation</b>                        | Category 2 — eye irritation.                                                                                                                                |
| <b>Sensitisation</b>                         | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |
| <b>Mutagenicity</b>                          | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |
| <b>Carcinogenicity</b>                       | Category 2 (harmonised classification, Annex VI to CLP).                                                                                                    |
| <b>IARC classification (carcinogenicity)</b> | IARC Group 2B — possibly carcinogenic to humans. [local snapshot — not verified against the current IARC list] <sup>[22]</sup>                              |
| <b>Reproductive toxicity</b>                 | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |
| <b>STOT — single exposure</b>                | Category 3 (H335): May cause respiratory irritation. <sup>[3][10]</sup>                                                                                     |
| <b>STOT — repeated exposure</b>              | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |
| <b>Aspiration hazard</b>                     | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][10]</sup> |

## 12. Ecological information

|                                        |                                                                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Aquatic toxicity</b>                | LC <sub>50</sub> (fish): 2160 mg/L (Pimephales promelas, 96 h). EC <sub>50</sub> (Daphnia): 5930 mg/L (Daphnia magna, 24 h) <sup>[23]</sup> |
| <b>Persistence / biodegradability</b>  | No data available.                                                                                                                          |
| <b>Bioaccumulative potential</b>       | log Kow = 0.46. Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). <sup>[20][21]</sup>    |
| <b>Mobility in soil</b>                | No data available.                                                                                                                          |
| <b>PBT/vPvB assessment</b>             | Insufficient data to assess PBT/vPvB.                                                                                                       |
| <b>Endocrine disrupting properties</b> | No information.                                                                                                                             |

## 13. Disposal considerations

|                         |                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Disposal method</b>  | Hand over for disposal to licensed contractors in accordance with national and local regulations. Do not discharge into sewers.                               |
| <b>Waste code (EWC)</b> | 16 05 06* — Laboratory and analytical chemicals (np. chemical reagents) zawierające substancje niebezpieczne. EWC code verification required. <sup>[14]</sup> |
| <b>Packaging</b>        | Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.                                                                 |

## 14. Transport information



Class 3 — Flammable liquids

|                               |                                       |
|-------------------------------|---------------------------------------|
| <b>UN number</b>              | UN 2056 <sup>[13]</sup>               |
| <b>Proper shipping name</b>   | TETRAHYDROFURAN <sup>[13]</sup>       |
| <b>Transport hazard class</b> | 3 — Flammable liquids <sup>[13]</sup> |

|                             |                                                                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Packing Group</b>        | II <sup>[13]</sup>                                                                                                                              |
| <b>Environmental hazard</b> | Not classified as environmentally hazardous for transport (no H400/H410/H411 in CLP Annex VI; no marine pollutant mark required) <sup>[3]</sup> |
| <b>Special precautions</b>  | Handle as dangerous goods according to the assigned class (ADR/IMDG/IATA); apply the precautions appropriate to that class.                     |
| <b>CN/HS code</b>           | CN/HS code: verification required in the Eurostat Combined Nomenclature.                                                                        |
| <b>Notes</b>                | Towar niebezpieczny ADR. Tworzy nadtlenki (EUH019).                                                                                             |

## 15. Regulatory information

|                                              |                                                                                                                                                                             |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SVHC status</b>                           | SVHC status not verified against the available dataset — check the current ECHA Candidate List; do not assume absence. <sup>[1]</sup>                                       |
| <b>REACH Annex XIV</b>                       | Not verified against the ECHA Authorisation List — check REACH Annex XIV. <sup>[1]</sup>                                                                                    |
| <b>REACH Annex XVII</b>                      | 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. <sup>[1]</sup> |
| <b>IARC classification (carcinogenicity)</b> | IARC Group 2B — possibly carcinogenic to humans.                                                                                                                            |

## 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 07.09.2026 were omitted as future (not yet applicable).

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

### Scientific citations (7)

NTP Toxicology and Carcinogenesis Studies of Tetrahydrofuran (CAS No. 109-99-9) in F344/N Rats and B6C3F1 Mice (Inhalation Studies).. (1998).

Fernández-Peña L, Díez-Poza C, González-Andrés P et al.. The Tetrahydrofuran Motif in Polyketide Marine Drugs.. Marine drugs (2022). DOI: 10.3390/md20020120

Pohjoispää M, Wähälä K. Synthesis of 3,4-dibenzyltetrahydrofuran lignans (9,9'-epoxylignanes).. Molecules (Basel, Switzerland) (2013). DOI: 10.3390/molecules181113124

Mei Y, Du Y. Tetrahydrofuran-Containing Pharmaceuticals: Targets, Pharmacological Activities, and their SAR Studies.. ChemMedChem (2025). DOI: 10.1002/cmdc.202500259

Fowles J, Boatman R, Bootman J et al.. A review of the toxicological and environmental hazards and risks of tetrahydrofuran.. Critical reviews in toxicology (2013). DOI: 10.3109/10408444.2013.836155

### Full text of H statements

|               |                                    |
|---------------|------------------------------------|
| <b>H225</b>   | Highly flammable liquid and vapour |
| <b>H351</b>   | Suspected of causing cancer        |
| <b>H335</b>   | May cause respiratory irritation   |
| <b>H319</b>   | Causes serious eye irritation      |
| <b>EUH019</b> | May form explosive peroxides.      |

### Full text of P statements

|             |                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------|
| <b>P201</b> | Obtain special instructions before use                                                        |
| <b>P202</b> | Do not handle until all safety precautions have been read and understood                      |
| <b>P210</b> | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking |
| <b>P233</b> | Keep container tightly closed                                                                 |
| <b>P240</b> | Ground and bond container and receiving equipment                                             |
| <b>P261</b> | Avoid breathing dust/fume/gas/mist/vapours/spray                                              |
| <b>P264</b> | Wash thoroughly after handling                                                                |
| <b>P271</b> | Use only outdoors or in a well-ventilated area                                                |

|                       |                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>P280</b>           | Wear protective gloves/protective clothing/eye protection/face protection                                                       |
| <b>P303+P361+P353</b> | IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower                           |
| <b>P304+P340</b>      | IF INHALED: Remove person to fresh air and keep comfortable for breathing                                                       |
| <b>P305+P351+P338</b> | IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing |
| <b>P308+P313</b>      | IF exposed or concerned: Get medical advice/attention                                                                           |
| <b>P312</b>           | Call a POISON CENTER or doctor/physician if you feel unwell                                                                     |
| <b>P337+P313</b>      | If eye irritation persists: Get medical advice/attention                                                                        |
| <b>P370+P378</b>      | In case of fire: Use appropriate media to extinguish                                                                            |
| <b>P403+P235</b>      | Store in a well-ventilated place: Keep cool                                                                                     |
| <b>P403+P233</b>      | Store in a well-ventilated place: Keep container tightly closed                                                                 |
| <b>P405</b>           | Store locked up                                                                                                                 |
| <b>P501</b>           | Dispose of contents/container to an approved waste collection point                                                             |

## Abbreviations

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

## Version history

|                        |                                                                    |
|------------------------|--------------------------------------------------------------------|
| <b>v2 (07.09.2026)</b> | 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: 2026-09-07.
- [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: 2026-09-07.

- [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: 2026-09-07.
- [4] United Nations. GHS Rev.9. ST/SG/AC.10/30/Rev.9. New York and Geneva: United Nations, 2021. URL: <https://unece.org/transport/dangerous-goods/ghs-rev9-2021> Accessed: 2026-09-07.
- [5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: <https://www.iso.org/standard/72424.html> Accessed: 2026-09-07.
- [6] ISO. ISO 3864-1:2011 — Safety colours and safety signs. URL: <https://www.iso.org/standard/51021.html> Accessed: 2026-09-07.
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## External links

NIST: <https://webbook.nist.gov/cgi/cbook.cgi?ID=109-99-9>

Wikidata: <https://www.wikidata.org/wiki/Q278332>

ChEMBL: [https://www.ebi.ac.uk/chembl/compound\\_report\\_card/CHEMBL276521](https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL276521)

**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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