

## SAFETY DATA SHEET (SDS)

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

Date: 02.09.2026 | Version: 1 | EN

## aldehyd glutarowy

pentanedial

CAS 111-30-8

 $C_5H_8O_2$ 

EC 203-856-5

MOLAR MASS  
100.12LOGP  
-0.5TPSA  
34.1 Å<sup>2</sup>T. WRZ.  
129.1827°C

## HAZARD CLASSIFICATION (GHS / CLP)



Danger

H330 H301 H335 H314 H334 H317 H400 H411 EUH071

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    | aldehyd glutarowy           |
| 1.1 IUPAC name        | pentanedial                 |
| 1.1 CAS number        | 111-30-8                    |
| 1.1 EC number         | 203-856-5                   |
| 1.1 PubChem CID       | 3485                        |
| 1.1 InChIKey          | SXRSQZLOMIGNAQ-UHFFFAOYSA-N |
| 1.1 SMILES            | C(CC=O)CC=O                 |
| 1.1 Molecular formula | $C_5H_8O_2$ <sup>[7]</sup>  |
| 1.1 Molar mass        | 100.12 g/mol <sup>[7]</sup> |
| 1.1 Exact mass        | 100.0524 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)

The number above is the Polish poison centre (CIT, Lodz, 24/7). It is NOT the poison centre designated for your country. Under Article 45 of Regulation (EC) No 1272/2008 the competent body is the centre designated in the country of placing on the market — consult it before use.

## 2. Hazards identification



**Danger**

### Hazard statements (H) <sup>[3][4][10]</sup>

|               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| <b>H330</b>   | Fatal if inhaled                                                          |
| <b>H301</b>   | Toxic if swallowed                                                        |
| <b>H335</b>   | May cause respiratory irritation                                          |
| <b>H314</b>   | Causes severe skin burns and eye damage                                   |
| <b>H334</b>   | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| <b>H317</b>   | May cause an allergic skin reaction                                       |
| <b>H400</b>   | Very toxic to aquatic life                                                |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects                           |
| <b>EUH071</b> | Corrosive to the respiratory tract.                                       |

### Precautionary statements (P) <sup>[3][4][10]</sup>

|                       |                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>P233</b>           | Keep container tightly closed                                                                                                   |
| <b>P260</b>           | Do not breathe dust/fume/gas/mist/vapours/spray                                                                                 |
| <b>P264</b>           | Wash thoroughly after handling                                                                                                  |
| <b>P270</b>           | Do not eat, drink or smoke when using this product                                                                              |
| <b>P271</b>           | Use only outdoors or in a well-ventilated area                                                                                  |
| <b>P272</b>           | Contaminated work clothing should not be allowed out of the workplace                                                           |
| <b>P273</b>           | Avoid release to the environment                                                                                                |
| <b>P280</b>           | Wear protective gloves/protective clothing/eye protection/face protection                                                       |
| <b>P284</b>           | Wear respiratory protection                                                                                                     |
| <b>P301+P310</b>      | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician                                                              |
| <b>P301+P330+P331</b> | IF SWALLOWED: Rinse mouth; Do NOT induce vomiting                                                                               |
| <b>P302+P352</b>      | IF ON SKIN: Wash with plenty of water                                                                                           |
| <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>P310</b>      | Immediately call a POISON CENTER or doctor/physician                           |
| <b>P312</b>      | Call a POISON CENTER or doctor/physician if you feel unwell                    |
| <b>P320</b>      | Specific treatment is urgent                                                   |
| <b>P321</b>      | Specific treatment                                                             |
| <b>P330</b>      | Rinse mouth                                                                    |
| <b>P333+P313</b> | If skin irritation or rash occurs: Get medical advice/attention                |
| <b>P342+P311</b> | If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician |
| <b>P362+P364</b> | Take off contaminated clothing                                                 |
| <b>P363</b>      | Wash contaminated clothing before reuse                                        |
| <b>P391</b>      | Collect spillage                                                               |
| <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            |

**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

|                                                                            |                                                                                       |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Substance type</b>                                                      | pure substance                                                                        |
| <b>CAS Number</b>                                                          | 111-30-8                                                                              |
| <b>EC number</b>                                                           | 203-856-5                                                                             |
| <b>Molecular formula</b>                                                   | C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>                                          |
| <b>Concentration</b>                                                       | ≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification) |
| <b>Clp index no</b>                                                        | 605-022-00-X                                                                          |
| <b>Specyficzne stężenia graniczne / M-współczynnik (CLP Zał. VI Tab.3)</b> | SCL: H335: 0,5 % ≤ C < 5 % · M-współczynnik: 1 [PL] <sup>[3]</sup>                    |

### 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). <sup>[1][2][13]</sup>

#### Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). Call a physician immediately. <sup>[1][2][13]</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][13]</sup>

#### Ingestion

Do NOT induce vomiting (unless directed by a physician). Rinse mouth with water. Never give anything by mouth to an unconscious person. Poison Centre Łódź: +48 42 631 47 24 (24/7). Emergency number: 112. <sup>[1][2][13]</sup>

#### Symptoms and effects

nausea, vomiting, diarrhoea; cough, shortness of breath, headache, dizziness; skin redness and irritation. <sup>[3][10]</sup>

#### Notes for physician

Requires verification

**Emergency numbers: CIT Łódź: +48 42 631 47 24 (24/7) | Emergency: 112**

## 5. Firefighting measures

|                                       |                                                                                |
|---------------------------------------|--------------------------------------------------------------------------------|
| <b>Suitable extinguishing media</b>   | Adapt extinguishing media to surroundings. CO <sub>2</sub> , dry powder, foam. |
| <b>Unsuitable extinguishing media</b> | No specific restrictions.                                                      |
| <b>Specific hazards</b>               | Thermal decomposition products:CO, CO <sub>2</sub> . <sup>[14]</sup>           |
| <b>Advice for firefighters</b>        | Use self-contained breathing apparatus (SCBA). Full protective suit.           |
| <b>Flash Point</b>                    | 95°C <sup>[7]</sup>                                                            |
| <b>Auto-ignition temperature</b>      | 225°C <sup>[7]</sup>                                                           |

## 6. Accidental release measures

|                                                |                                                                                                                                                                                                   |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b>                    | Use personal protective equipment (see Section 8). Avoid breathing vapours. <sup>[1][2][13]</sup>                                                                                                 |
| <b>Environmental precautions</b>               | Prevent entry into sewers, groundwater and surface water. <sup>[1][2][13]</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. <sup>[1][2][13]</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][13]</sup> |
| <b>Storage temperature</b>    | Store at room temperature (15-25°C) or as indicated on the label. <sup>[1][2][13]</sup>                                  |
| <b>Humidity</b>               | Store in a dry place (<60% RH). <sup>[1][2][13]</sup>                                                                    |
| <b>Light</b>                  | Protect from direct sunlight. <sup>[1][2][13]</sup>                                                                      |
| <b>Incompatible materials</b> | Strong oxidizers. <sup>[14]</sup>                                                                                        |

## 8. Exposure controls/personal protection

### 8.1 Control parameters

|                           |                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OEL — NDS (Poland)</b> | 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. |
| <b>OEL (EU)</b>           | 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.     |
| <b>DNEL</b>               | No data available.                                                                                                                                 |
| <b>PNEC</b>               | No data available.                                                                                                                                 |

### 8.2 Personal protective equipment (PPE) <sup>[5][6][15]</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 137:2006  
**SCBA (self-contained breathing apparatus)**



**Face shield (splash risk)**  
EN ISO 16321-1:2022



**Chemical-resistant protective clothing**  
EN 13034:2005+A1:2009 (typ 6) / EN 14126:2003 (bio)



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

## 9. Physical and chemical properties

| Property (item 9.1)                               | Value                                                 | Source                             |
|---------------------------------------------------|-------------------------------------------------------|------------------------------------|
| Physical state                                    | Liquid                                                |                                    |
| Colour                                            | No data available.                                    |                                    |
| Odour                                             | No data available.                                    |                                    |
| pH (1% aqueous solution)                          | No data available.                                    |                                    |
| Melting point                                     | -8.4808°C [8] [7] ✓94%                                | nist+consensus, cache, pubchem_exp |
| Boiling point                                     | 129.1827°C [8] [7] ✓94%                               | nist+consensus, cache, pubchem_exp |
| Flash point                                       | 95°C (experimental data) [7]                          | pubchem_exp                        |
| Flammability                                      | No data available.                                    |                                    |
| Lower and upper explosion limit                   | No data available.                                    |                                    |
| Density (20°C)                                    | 1.077 g/cm <sup>3</sup> [7] ✓86%                      | cache+consensus, pubchem_exp       |
| Vapour pressure                                   | 2.266 kPa (17 mmHg, 20°C) (experimental data) [7]     | pubchem_exp                        |
| Relative vapour density                           | 3.46 [19]                                             |                                    |
| Kinematic viscosity                               | No data available.                                    |                                    |
| Refractive index n <sub>D</sub> <sup>20</sup>     | 1.433 (experimental data) [7]                         |                                    |
| Auto-ignition temperature                         | 225°C (experimental data) [7]                         |                                    |
| Decomposition temperature                         | Not applicable                                        |                                    |
| Rozpuszcz. w wodzie                               | No data available.                                    |                                    |
| Particle characteristics                          | Not applicable (REACH 9.1(r))                         |                                    |
| Partition coefficient n-octanol/water (log value) | -0.5 [9]                                              |                                    |
| Molar mass                                        | 100.12 g/mol [7] ✓86%                                 | pubchem, cache                     |
| Molecular formula                                 | C <sub>5</sub> H <sub>8</sub> O <sub>2</sub> [7] ✓86% | pubchem, cache                     |
| 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.                                     |
| Decomposition products | Thermal decomposition products: CO, CO <sub>2</sub> . |

## 11. Toxicological information

|               |                                                                 |
|---------------|-----------------------------------------------------------------|
| LD50 (oral)   | LD50 134 mg/kg; 246 mg/kg; 154 mg/kg; 315 mg/kg (rat, oral) [7] |
| LD50 (dermal) | No data available.                                              |

|                                              |                                                                                                                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LC50 (inhalation)</b>                     | No data available.                                                                                                                                                                                |
| <b>Skin irritation</b>                       | Category 1 (H314) — corrosive; sub-category (1A/1B/1C) per CLP Annex VI entry. <sup>[3][10]</sup>                                                                                                 |
| <b>Eye irritation</b>                        | Serious eye damage — covered by the corrosive classification (H314; CLP Annex I 3.3.2.1). <sup>[3][10]</sup>                                                                                      |
| <b>Sensitisation</b>                         | Skin, Category 1 (H317): May cause an allergic skin reaction. Respiratory tract, Category 1 (H334): May cause allergy or asthma symptoms or breathing difficulties if inhaled. <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>                       | 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>IARC classification (carcinogenicity)</b> | No individual IARC monograph for this CAS — this is not confirmation of the absence of carcinogenicity (cf. CLP/GHS classification in section 2).                                                 |
| <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>                | Harmonised classification (CLP Annex VI): H400 — Very toxic to aquatic life (Aquatic Acute 1); H411 — Toxic to aquatic life with long lasting effects (Aquatic Chronic 2) (M-factor for acute/chronic cat. 1 — to be verified per Table 3 of Annex VI, if assigned.). LC <sub>50</sub> (fish): 5.4 mg/L (Pimephales promelas, 96 h). EC <sub>50</sub> (Daphnia): 0.75 mg/L (Daphnia magna, 48 h). EC <sub>50</sub> (algae): 0.31 mg/L (Raphidocelis subcapitata, 96 h) <sup>[18]</sup> |
| <b>Persistence / biodegradability</b>  | No data available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Bioaccumulative potential</b>       | log Kow = -0.5 <sup>[9]</sup> . Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). <sup>[16][17]</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>[12]</sup> |
| <b>Packaging</b>        | Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.                                                                 |

## 14. Transport information



Class 6.1 — Toxic substances



Class 8 — Corrosive substances

|                                                        |                                                                                                                                                                        |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UN number</b>                                       | UN 2810 <sup>[7]</sup>                                                                                                                                                 |
| <b>Transport hazard class</b>                          | Suggested from GHS classification — VERIFICATION REQUIRED.                                                                                                             |
| <b>Environmental hazard</b>                            | CLP classification (H400/H411) indicates aquatic environmental hazard — marine pollutant marking may be required; confirm per ADR 2.2.9 / IMDG criteria <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>                                           | UN number per the indicated source. Verify the transport class and packing group in ADR Table A / UN Model Regulations before shipment. <sup>[7]</sup>                 |
| <b>Environmentally hazardous (mark: fish and tree)</b> | Yes                                                                                                                                                                    |

## 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> |

## 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 02.09.2026 were omitted as future (not yet applicable).

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

### Scientific citations (10)

Frank W. Kari. NTP technical report on the toxicity studies of Glutaraldehyde (CAS No. 111-30-8) Administered by Inhalation to F344/N Rats and B6C3F1 Mice.. PubMed (1993).

Anshul Kundaje, Wouter Meuleman, Jason Ernst et al.. Integrative analysis of 111 reference human epigenomes. Nature (2015). DOI: 10.1038/nature14248

Matthew Li, Jun Lü, Zhongwei Chen et al.. 30 Years of Lithium-Ion Batteries. Advanced Materials (2018). DOI: 10.1002/adma.201800561

Christian Quast, Elmar Priesse, Pelin Yilmaz et al.. The SILVA ribosomal RNA gene database project: improved data processing and web-based tools. Nucleic Acids Research (2012). DOI: 10.1093/nar/gks1219

Spencer L James, Alice Theadom, Richard G. Ellenbogen et al.. Global, regional, and national burden of traumatic brain injury and spinal cord injury, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet Neurology (2018). DOI: 10.1016/s1474-4422(18)30415-0

### Full text of H statements

|               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| <b>H330</b>   | Fatal if inhaled                                                          |
| <b>H301</b>   | Toxic if swallowed                                                        |
| <b>H335</b>   | May cause respiratory irritation                                          |
| <b>H314</b>   | Causes severe skin burns and eye damage                                   |
| <b>H334</b>   | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| <b>H317</b>   | May cause an allergic skin reaction                                       |
| <b>H400</b>   | Very toxic to aquatic life                                                |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects                           |
| <b>EUH071</b> | Corrosive to the respiratory tract.                                       |

### Full text of P statements

|             |                                                 |
|-------------|-------------------------------------------------|
| <b>P233</b> | Keep container tightly closed                   |
| <b>P260</b> | Do not breathe dust/fume/gas/mist/vapours/spray |

|                       |                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>P264</b>           | Wash thoroughly after handling                                                                                                  |
| <b>P270</b>           | Do not eat, drink or smoke when using this product                                                                              |
| <b>P271</b>           | Use only outdoors or in a well-ventilated area                                                                                  |
| <b>P272</b>           | Contaminated work clothing should not be allowed out of the workplace                                                           |
| <b>P273</b>           | Avoid release to the environment                                                                                                |
| <b>P280</b>           | Wear protective gloves/protective clothing/eye protection/face protection                                                       |
| <b>P284</b>           | Wear respiratory protection                                                                                                     |
| <b>P301+P310</b>      | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician                                                              |
| <b>P301+P330+P331</b> | IF SWALLOWED: Rinse mouth; Do NOT induce vomiting                                                                               |
| <b>P302+P352</b>      | IF ON SKIN: Wash with plenty of water                                                                                           |
| <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>P310</b>           | Immediately call a POISON CENTER or doctor/physician                                                                            |
| <b>P312</b>           | Call a POISON CENTER or doctor/physician if you feel unwell                                                                     |
| <b>P320</b>           | Specific treatment is urgent                                                                                                    |
| <b>P321</b>           | Specific treatment                                                                                                              |
| <b>P330</b>           | Rinse mouth                                                                                                                     |
| <b>P333+P313</b>      | If skin irritation or rash occurs: Get medical advice/attention                                                                 |
| <b>P342+P311</b>      | If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician                                                  |
| <b>P362+P364</b>      | Take off contaminated clothing                                                                                                  |
| <b>P363</b>           | Wash contaminated clothing before reuse                                                                                         |
| <b>P391</b>           | Collect spillage                                                                                                                |
| <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

**v1 (02.09.2026)** Based on ECHA harmonised classification (Annex VI to CLP, ATP 23).

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#### External links

NIST: <https://webbook.nist.gov/cgi/cbook.cgi?ID=111-30-8>  
 Wikidata: <https://www.wikidata.org/wiki/Q416475>  
 ChEMBL: [https://www.ebi.ac.uk/chembl/compound\\_report\\_card/CHEMBL1235482](https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL1235482)

#### ADMET / Drug-likeness





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**Author:** [www.MolGod.org](http://www.MolGod.org) — platform for automated safety data sheets (SDS).

Issue date: 02.09.2026 | Document version: 1

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