

## SAFETY DATA SHEET (SDS)

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

Date: 07.09.2026 | Version: 4 | EN

## perfluorooctanesulfonic acid

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonic acid

CAS 1763-23-1

 $C_8HF_{17}O_3S$ 

EC 217-179-8

MOLAR MASS  
500.13LOGP  
5

## HAZARD CLASSIFICATION (GHS / CLP)



Danger

H351 H360D H362 H332 H302 H372 H411

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    | perfluorooctanesulfonic acid                                                    |
| 1.1 IUPAC name        | 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonic acid         |
| 1.1 CAS number        | 1763-23-1                                                                       |
| 1.1 EC number         | 217-179-8                                                                       |
| 1.1 PubChem CID       | 74483                                                                           |
| 1.1 InChIKey          | YFSUTJLHUFNCNZ-UHFFFAOYSA-N                                                     |
| 1.1 SMILES            | <chem>C(C(C(C(C(F)S(=O)(=O)O)(F)F)(F)F)(F)F)(C(C(C(F)(F)F)(F)F)(F)F)(F)F</chem> |
| 1.1 Molecular formula | $C_8HF_{17}O_3S$ <sup>[7]</sup>                                                 |
| 1.1 Molar mass        | 500.13 g/mol <sup>[7]</sup>                                                     |
| 1.1 Exact mass        | 499.9375 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][9]

|              |                                                                |
|--------------|----------------------------------------------------------------|
| <b>H351</b>  | Suspected of causing cancer                                    |
| <b>H360D</b> | May damage the unborn child                                    |
| <b>H362</b>  | May cause harm to breast-fed children                          |
| <b>H332</b>  | Harmful if inhaled                                             |
| <b>H302</b>  | Harmful if swallowed                                           |
| <b>H372</b>  | Causes damage to organs through prolonged or repeated exposure |
| <b>H411</b>  | Toxic to aquatic life with long lasting effects                |

### Precautionary statements (P) [3][4][9]

|                  |                                                                           |
|------------------|---------------------------------------------------------------------------|
| <b>P201</b>      | Obtain special instructions before use                                    |
| <b>P202</b>      | Do not handle until all safety precautions have been read and understood  |
| <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>P273</b>      | Avoid release to the environment                                          |
| <b>P280</b>      | Wear protective gloves/protective clothing/eye protection/face protection |
| <b>P301+P312</b> | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell |
| <b>P304+P340</b> | IF INHALED: Remove person to fresh air and keep comfortable for breathing |
| <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>P314</b>      | Get medical advice/attention if you feel unwell                           |
| <b>P330</b>      | Rinse mouth                                                               |
| <b>P391</b>      | Collect spillage                                                          |
| <b>P405</b>      | Store locked up                                                           |
| <b>P501</b>      | Dispose of contents/container to an approved waste collection point       |

**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>[14][15]</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        | 1763-23-1                                                                             |
| EC number         | 217-179-8                                                                             |
| Molecular formula | $C_8HF_{17}O_3S$                                                                      |
| Concentration     | ≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification) |
| Clp index no      | 607-624-00-8                                                                          |

### 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][12]</sup>

#### Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). <sup>[1][2][12]</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][12]</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][12]</sup>

#### Symptoms and effects

nausea, vomiting, diarrhoea; cough, shortness of breath, headache, dizziness. <sup>[3][9]</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>   | 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> , SO <sub>x</sub> , HF. <sup>[13]</sup> |
| <b>Advice for firefighters</b>        | Use self-contained breathing apparatus (SCBA). Full protective suit.                       |
| <b>Flash Point</b>                    | 11 [wartość z poprzedniej regeneracji, 2026-08-27]°C [PL] <sup>[8]</sup>                   |

## 6. Accidental release measures

|                                                |                                                                                                                                                                    |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b>                    | Use personal protective equipment (see Section 8). Avoid breathing dust/vapours. <sup>[1][2][12]</sup>                                                             |
| <b>Environmental precautions</b>               | Prevent entry into sewers, groundwater and surface water. <sup>[1][2][12]</sup>                                                                                    |
| <b>Methods for containment and cleaning up</b> | Absorb with inert material (sand, vermiculite, diatomaceous earth) and collect into sealed, labelled containers. Do not release into drains. <sup>[1][2][12]</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][12]</sup> |
| <b>Storage temperature</b>    | Store at room temperature (15-25°C) or as indicated on the label. <sup>[1][2][12]</sup>                                  |
| <b>Humidity</b>               | Store in a dry place (<60% RH). <sup>[1][2][12]</sup>                                                                    |
| <b>Light</b>                  | Protect from direct sunlight. <sup>[1][2][12]</sup>                                                                      |
| <b>Incompatible materials</b> | Strong oxidizers, strong bases, Base metals (hydrogen evolution). <sup>[13]</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][16]</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> | No data available. |        |
| <b>Colour</b>         | No data available. |        |

| Property (item 9.1)                                      | Value                                                                                         | Source |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------|
| <b>Odour</b>                                             | No data available.                                                                            |        |
| <b>pH (1% aqueous solution)</b>                          | No data available.                                                                            |        |
| <b>Melting point</b>                                     | No data available.                                                                            |        |
| <b>Boiling point</b>                                     | 249 [wartość z poprzedniej regeneracji, 2026-08-27]°C [PL] <sup>[8]</sup>                     |        |
| <b>Flash point</b>                                       | 11 [wartość z poprzedniej regeneracji, 2026-08-27]°C [PL] <sup>[8]</sup>                      |        |
| <b>Flammability</b>                                      | No data available.                                                                            |        |
| <b>Lower and upper explosion limit</b>                   | No data available.                                                                            |        |
| <b>Density (20°C)</b>                                    | No data available.                                                                            |        |
| <b>Vapour pressure</b>                                   | 0 kPa (0.000331 Pa, 20°C) [wartość z poprzedniej regeneracji, 2026-08-27] [PL] <sup>[8]</sup> |        |
| <b>Relative vapour density</b>                           | No data available.                                                                            |        |
| <b>Kinematic viscosity</b>                               | No data available.                                                                            |        |
| <b>Auto-ignition temperature</b>                         | No data available.                                                                            |        |
| <b>Decomposition temperature</b>                         | Not applicable                                                                                |        |
| <b>Rozpuszcz. w wodzie</b>                               | 0.056 g/L [wartość z poprzedniej regeneracji, 2026-08-27] [PL] <sup>[8]</sup>                 |        |
| <b>Particle characteristics</b>                          | No data available.                                                                            |        |
| <b>Partition coefficient n-octanol/water (log value)</b> | 5 <sup>[8]</sup>                                                                              |        |
| <b>Molar mass</b>                                        | 500.13 g/mol <sup>[7]</sup>                                                                   |        |
| <b>Molecular formula</b>                                 | C <sub>8</sub> HF <sub>17</sub> O <sub>3</sub> S <sup>[7]</sup>                               |        |
| <b>Lipinski rule (RO5)</b>                               | <b>FAIL</b>                                                                                   |        |

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

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| <b>Reactivity</b>             | Stable under normal storage and handling conditions.                        |
| <b>Chemical stability</b>     | Thermally stable under recommended conditions.                              |
| <b>Hazardous reactions</b>    | No hazardous reactions known under normal conditions.                       |
| <b>Conditions to avoid</b>    | High temperatures, direct sunlight, moisture.                               |
| <b>Incompatible materials</b> | Strong oxidizers, strong bases, Base metals (hydrogen evolution).           |
| <b>Decomposition products</b> | Thermal decomposition products: CO, CO <sub>2</sub> , SO <sub>x</sub> , HF. |

## 11. Toxicological information

|                          |                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LD50 (oral)</b>       | LD50 251 mg/kg; 154 mg/kg (rat, oral) <sup>[7]</sup>                                                                                                       |
| <b>LD50 (dermal)</b>     | No data available.                                                                                                                                         |
| <b>LC50 (inhalation)</b> | LC50 5200 mg/m <sup>3</sup> (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][9]</sup> |

|                                              |                                                                                                                                                            |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye irritation</b>                        | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][9]</sup> |
| <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][9]</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][9]</sup> |
| <b>Carcinogenicity</b>                       | Category 2 (harmonised classification, Annex VI to CLP).                                                                                                   |
| <b>IARC classification (carcinogenicity)</b> | No individual IARC monograph — NOTE: substance classified as carcinogenic per ECHA CLP; absence of an IARC entry does NOT mean absence of carcinogenicity. |
| <b>Reproductive toxicity</b>                 | Category 1A/1B (harmonised classification, Annex VI to CLP).                                                                                               |
| <b>STOT — single exposure</b>                | Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) <sup>[3][9]</sup> |
| <b>STOT — repeated exposure</b>              | Category 1 (H372): Causes damage to organs through prolonged or repeated exposure. <sup>[3][9]</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][9]</sup> |

## 12. Ecological information

|                                        |                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Aquatic toxicity</b>                | Harmonised classification (CLP Annex VI): H411 — Toxic to aquatic life with long lasting effects (Aquatic Chronic 2). LC <sub>50</sub> (fish): 0.344 mg/L (Cyprinodon variegatus, 96 h). EC <sub>50</sub> (Daphnia): 23.4 mg/L (Daphnia magna, 48 h). EC <sub>50</sub> (algae): 37.5 mg/L (Isochrysis galbana, 72 h) <sup>[19]</sup> |
| <b>Persistence / biodegradability</b>  | No data available.                                                                                                                                                                                                                                                                                                                   |
| <b>Bioaccumulative potential</b>       | log Kow = 5 <sup>[8]</sup> . Elevated bioaccumulation potential (log Kow ≥ 4.5 — PBT/vPvB screening threshold per ECHA R.11); a definitive assessment requires the bioconcentration factor BCF (REACH Annex XIII: B if BCF > 2000). <sup>[17][18]</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> | Zgłoszone efekty endokrynne u organizmów wodnych (dane ekotoksykologiczne, US EPA ECOTOX; nie stanowią regulacyjnej klasyfikacji ED wg 2018/605). [PL] <sup>[19]</sup>                                                                                                                                                               |

## 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>[11]</sup> |
| <b>Packaging</b>        | Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.                                                                 |

## 14. Transport information

|                             |                                                                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UN number</b>            | VERIFICATION REQUIRED — no verified UN assignment.                                                                                                                |
| <b>Environmental hazard</b> | CLP classification (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.                                                                                          |

|                                                 |                                                                                                                         |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Notes                                           | Transport classification not verified. Do not assume the absence of restrictions — check ADR/IMDG/IATA before shipping. |
| Environmentally hazardous (mark: fish and tree) | Yes                                                                                                                     |

## 15. Regulatory information

|                  |                                                                                                                                                                            |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SVHC status      | SVHC status not verified against the available dataset — check the current ECHA Candidate List; do not assume absence. <sup>[1]</sup>                                      |
| REACH Annex XIV  | Not verified against the ECHA Authorisation List — check REACH Annex XIV. <sup>[1]</sup>                                                                                   |
| REACH Annex XVII | Subject to general entries 28–30 of REACH Annex XVII (CMR substance cat. 1A/1B): sale to the general public prohibited — supply to professional users only. <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 07.09.2026 were omitted as future (not yet applicable).

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

### Scientific citations (10)

- et al.. Single-cell RNA sequencing reveals tissue-specific transcriptomic changes induced by perfluorooctanesulfonic acid (PFOS) in larval zebrafish (Danio rerio).. (2025). DOI: 10.1016/j.jhazmat.2025.137515
- et al.. Toxicokinetics and Perfluorooctanesulfonic Acid-Induced Liver Protein Expression Are Markedly Altered in Mice Lacking Albumin.. (2025). DOI: 10.1021/acs.chemrestox.4c00508
- et al.. Evidence of the occurrence, detection, and ecotoxicity studies of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) in aqueous environments.. (2025). DOI: 10.1007/s40201-025-00934-4
- et al.. Developmental perfluorooctanesulfonic acid exposure impairs exocrine pancreas function in zebrafish (Danio rerio).. (2025). DOI: 10.1093/toxsci/kfaf041
- et al.. Preconception exposure to perfluorooctanesulfonic acid (PFOS) and perfluorobutanesulfonic acid (PFBS) impaired reproduction via insulin/insulin-like growth factor signaling pathway without effects on the second generation in *Caenorhabditis elegans*.. (2025). DOI: 10.1016/j.toxrep.2025.101966

### Full text of H statements

|       |                                                                |
|-------|----------------------------------------------------------------|
| H351  | Suspected of causing cancer                                    |
| H360D | May damage the unborn child                                    |
| H362  | May cause harm to breast-fed children                          |
| H332  | Harmful if inhaled                                             |
| H302  | Harmful if swallowed                                           |
| H372  | Causes damage to organs through prolonged or repeated exposure |
| H411  | Toxic to aquatic life with long lasting effects                |

### Full text of P statements

|           |                                                                           |
|-----------|---------------------------------------------------------------------------|
| P201      | Obtain special instructions before use                                    |
| P202      | Do not handle until all safety precautions have been read and understood  |
| 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                            |
| P273      | Avoid release to the environment                                          |
| P280      | Wear protective gloves/protective clothing/eye protection/face protection |
| P301+P312 | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing |

|                  |                                                                     |
|------------------|---------------------------------------------------------------------|
| <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>P314</b>      | Get medical advice/attention if you feel unwell                     |
| <b>P330</b>      | Rinse mouth                                                         |
| <b>P391</b>      | Collect spillage                                                    |
| <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>v4 (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.
- [7] PubChem. National Center for Biotechnology Information (NIH/NLM), chemical compound database. URL: <https://pubchem.ncbi.nlm.nih.gov/compound/74483>
- [8] Rumble, J.R., ed. CRC Handbook of Chemistry and Physics. 105th ed. Boca Raton: CRC Press, 2024. URL: <https://hbcpc.chemnetbase.com>
- [9] ECHA. European Chemicals Agency — harmonised classification inventory (CLP Annex VI). URL: <https://echa.europa.eu>

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## External links

NIST: <https://webbook.nist.gov/cgi/cbook.cgi?ID=1763-23-1>

Wikidata: <https://www.wikidata.org/wiki/Q902094>

ChEMBL: [https://www.ebi.ac.uk/chembl/compound\\_report\\_card/CHEMBL1876554](https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL1876554)

**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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