SAFETY DATA SHEET (SDS)

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

Date: 21.10.2026 | Version: 6 | EN

styrene

styrene

CAS 100-42-5

C_8H_8 | EC 202-851-5

MOLAR MASS	LOGP
104.15	2.9

HAZARD CLASSIFICATION (GHS / CLP)



Danger

H226 | H361d | H332 | H372 (hearing organs) | H315 | H319

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	styrene
1.1 IUPAC name	styrene
1.1 CAS number	100-42-5
1.1 EC number	202-851-5
1.1 PubChem CID	7501
1.1 InChIKey	PPBRXRYQALVLMV-UHFFFAOYSA-N
1.1 SMILES	C=CC1=CC=CC=C1
1.1 Molecular formula	C_8H_8 [7]
1.1 Molar mass	104.15 g/mol [7]
1.1 Exact mass	104.0626 Da [7]

1.2 Uses

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

1.3 Details of the supplier

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

1.4 Emergency telephone number

Emergency telephone	112 (EU-wide emergency number)

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

2. Hazards identification

GHS:



PPE:



Prohibitions:



Danger

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

H226	Flammable liquid and vapour
H361d	Suspected of damaging the unborn child
H332	Harmful if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
H315	Causes skin irritation
H319	Causes serious eye irritation

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

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233	Keep container tightly closed
P240	Ground and bond container and receiving equipment
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
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
P302+P352	IF ON SKIN: Wash with plenty of water
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313	IF exposed or concerned: Get medical advice/attention
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P314	Get medical advice/attention if you feel unwell
P332+P313	If skin irritation occurs: Get medical advice/attention

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P337+P313	If eye irritation persists: Get medical advice/attention
P370+P378	In case of fire: Use appropriate media to extinguish
P403+P235	Store in a well-ventilated place: Keep cool
P405	Store locked up
P501	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). [16][17]

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	100-42-5
EC number	202-851-5
Molecular formula	C_8H_8
Concentration	≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification)
Clp index no	601-026-00-0

4. First aid measures



Inhalation

Move the affected person to fresh air. Keep at rest. If not breathing: artificial respiration (qualified personnel only). [1][2][14]

Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). [1][2][14]

Eye contact

Rinse eyes with running water (min. 15 minutes). Remove contact lenses if possible. If irritation persists — consult an ophthalmologist. [1][2][14]

Ingestion

Do NOT induce vomiting (unless directed by a physician). Rinse mouth with water. Never give anything by mouth to an unconscious person. Emergency number: 112 (EU-wide). Contact the poison centre designated in your country (CLP Art. 45). [1][2][14]

Symptoms and effects

cough, shortness of breath, headache, dizziness; skin redness and irritation; eye irritation and watering. [3][10]

Notes for physician

Requires verification

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

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5. Firefighting measures

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide (CO_2), dry chemical powder, water spray/mist. [1][2][14]
Unsuitable extinguishing media	Full/compact water jet (splashes and spreads the burning liquid, which floats on water). [1][2][14]
Specific hazards	Thermal decomposition products: CO, CO2. [15]
Advice for firefighters	Use self-contained breathing apparatus (SCBA). Full protective suit. [1][2][14]
Flash Point	31°C [7]
Auto-ignition temperature	490°C [7]

6. Accidental release measures

Personal precautions	Use personal protective equipment (see Section 8). Avoid breathing vapours. [1][2][14]
Environmental precautions	Prevent entry into sewers, groundwater and surface water. [1][2][14]
Methods for containment and cleaning up	Contain the spill with a barrier. Absorb with inert material (sand, vermiculite, diatomaceous earth). Collect into sealed, labelled containers. Do not release into drains. Remove ignition sources; use non-sparking tools. [1][2][14]
Related sections	8; 13

7. Handling and storage

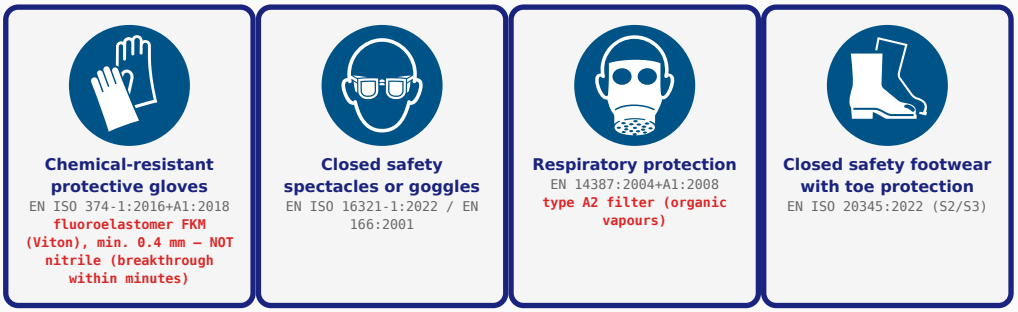
Precautions	Work in a fume hood or with adequate ventilation. No eating, drinking or smoking in the work area. [1][2][14]
Storage temperature	Store at room temperature (15-25°C) or as indicated on the label. [1][2][14]
Humidity	Store in a dry place (<60% RH). [1][2][14]
Light	Protect from direct sunlight. [1][2][14]
Incompatible materials	Strong oxidizers, Ignition sources, open flames. [15]

8. Exposure controls/personal protection

8.1 Control parameters

OEL — NDS (Poland)	NDS = 50 mg/m³ (TWA) · NDSCh = 100 mg/m³ (STEL) — Rozp. MRiPS Dz.U. 2024 poz.1017 [27]
OEL (EU)	No adopted OEL value at EU level (verified against the set of IOELV/BOELV directives).
DNEL	No data available.
PNEC	No data available.

8.2 Personal protective equipment (PPE) [5][6][18]



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9. Physical and chemical properties

Property (item 9.1)	Value	Source
Physical state	Liquid	
Colour	Colorless to yellowish, oily liquid [7]	
Odour	Characteristic, sweet, balsamic, almost floral odor that is extremely penetrating [7]	
pH (1% aqueous solution)	No data available.	
Melting point	-30.65°C [7][24][25][26]	
Boiling point	145.7038°C [8] [7][24][25][26]	
Flash point	31°C [7][24][25][26]	
Flammability	Flam. Liq. 3 (H226) [3][10]	
Lower and upper explosion limit	0.97–7.7 % obj. [24]	
Density (20°C)	0.907 g/cm³ [7][24][25][26]	
Vapour pressure	0.573 kPa (4.3 mmHg, 15°C) [7][24]	
Relative vapour density	3.60 [23]	
Dynamic viscosity	0.696 mPa·s [7]	
Kinematic viscosity	No data available.	
Refractive index nD^{20}	1.544 (experimental data) [7]	
Auto-ignition temperature	490°C [7][24]	
Decomposition temperature	Not applicable	
Water solubility	0.3 g/L, 25°C [7]	
Particle characteristics	Not applicable (REACH 9.1(r))	
Partition coefficient n-octanol/water (log value)	2.9 [7][9][25][26]	
Molar mass	104.15 g/mol [7]	
Molecular formula	C_8H_8 [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	Reactive monomer — may undergo hazardous polymerisation (see below). [15]
Chemical stability	Monomer capable of exothermic autopolymerisation; requires an inhibitor (stabiliser). Depletion of the inhibitor, heating or contamination may initiate violent polymerisation. [15]
Hazardous reactions	Hazardous polymerisation: a violent, exothermic polymerisation reaction is possible, with a pressure rise and a risk of container rupture. Initiated by heat, light, peroxides, oxidisers or loss of the inhibitor. [15]
Conditions to avoid	Heating, UV light, loss of the inhibitor, contact with oxidisers/peroxides/ radical initiators. [15]
Incompatible materials	Strong oxidizers, Ignition sources, open flames.

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Decomposition products	Thermal decomposition products: CO, CO2.

11. Toxicological information

LD50 (oral)	No data available.
LD50 (dermal)	No data available.
LC50 (inhalation)	No data available.
Skin irritation	Category 2 — skin irritation.
Eye irritation	Category 2 — eye irritation.
Sensitisation	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][10]
Mutagenicity	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][10]
Carcinogenicity	No harmonised CLP classification as carcinogenic; for carcinogenicity assessment see the IARC classification below. [21]
IARC classification (carcinogenicity)	IARC Group 2A — probably carcinogenic to humans. [local snapshot — not verified against the current IARC list] [21]
Reproductive toxicity	Category 2 (harmonised classification, Annex VI to CLP).
STOT — single exposure	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][10]
STOT — repeated exposure	Category 1 (H372): Causes damage to organs through prolonged or repeated exposure. [3][10]
Aspiration hazard	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][10]

12. Ecological information

Aquatic toxicity	LC_{50} (fish): 4.02 mg/L (Pimephales promelas, 96 h). EC_{50} (Daphnia): 4.7 mg/L (Daphnia magna, 48 h). EC_{50} (algae): 0.56 mg/L (Raphidocelis subcapitata, 48 h) [22]
Persistence / biodegradability	No data available.
Bioaccumulative potential	log Kow = 2.9 [9]. Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). [19][20]
Mobility in soil	No data available.
PBT/vPvB assessment	Insufficient data to assess PBT/vPvB.
Endocrine disrupting properties	No information.

13. Disposal considerations

Disposal method	Hand over for disposal to licensed contractors in accordance with national and local regulations. Do not discharge into sewers.
Waste code (EWC)	16 05 06* — Laboratory and analytical chemicals (e.g. chemical reagents) containing hazardous substances. Verification of the EWC code required. [13]
Packaging	Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.

14. Transport information



Class 3 — Flammable liquids

UN number	UN 2055 [12]

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Proper shipping name	STYRENE MONOMER, STABILIZED [12]
Transport hazard class	3 — Flammable liquids [12]
Packing Group	III [12]
Environmental hazard	The aquatic hazard classes are not covered by the harmonised entry in Annex VI. Data in Section 12 indicate a value below the classification threshold — supplier self-classification (Article 4(3) CLP) and verification per ADR 2.2.9 / IMDG are required. Do not assume that marking as a marine pollutant is not required. [3]
Special precautions	Handle as dangerous goods according to the assigned class (ADR/IMDG/IATA); apply the precautions appropriate to that class.
CN/HS code	CN/HS code: verification required in the Eurostat Combined Nomenclature.
Notes	Dangerous goods ADR/IMDG/IATA. Monomer stabilised with inhibitor — see Section 10 (polymerisation).
Environmentally hazardous (mark: fish and tree)	Requires verification

15. Regulatory information

SVHC status	SVHC status not verified against the available dataset — check the current ECHA Candidate List; do not assume absence. [1]
REACH Annex XIV	Not verified against the ECHA Authorisation List — check REACH Annex XIV. [1]
REACH Annex XVII	Not confirmed in the available Annex XVII dataset — verify against the current ECHA list before placing on the market; do not assume absence of restriction. [1]
IARC classification (carcinogenicity)	IARC Group 2A — probably 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 21.10.2026 were omitted as future (not yet applicable).

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

Scientific citations (10)

Styrene - ToxFAQs\u2122 : CAS#: 100-42-5 [Arabic].

Styrene - ToxFAQs\u2122 : CAS#: 100-42-5 [Korean].

Styrene - ToxFAQs\u2122 : CAS#: 100-42-5 [Chinese].

Styrene - ToxFAQs\u2122 : CAS#: 100-42-5 [Hatian Creole].

Styrene - ToxFAQs\u2122 : CAS#: 100-42-5 [Portuguese].

Full text of H statements

H226	Flammable liquid and vapour
H361d	Suspected of damaging the unborn child
H332	Harmful if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
H315	Causes skin irritation
H319	Causes serious eye irritation

Full text of P statements

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood

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P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233	Keep container tightly closed
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P260	Do not breathe dust/fume/gas/mist/vapours/spray
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P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352	IF ON SKIN: Wash with plenty of water
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing
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P312	Call a POISON CENTER or doctor/physician if you feel unwell
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P332+P313	If skin irritation occurs: Get medical advice/attention
P337+P313	If eye irritation persists: Get medical advice/attention
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P403+P235	Store in a well-ventilated place: Keep cool
P405	Store locked up
P501	Dispose of contents/container to an approved waste collection point

Abbreviations

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

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STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
TPSA	Topological Polar Surface Area
vPvB	very Persistent and very Bioaccumulative

Version history

v6 (21.10.2026)	Based on ECHA harmonised classification (Annex VI to CLP, ATP 23).

References

[1] EP and Council. Reg.(EC) No 1907/2006 (REACH). Art.31, Annex II. OJ EU L 396/2006. URL: https://eur-lex.europa.eu/eli/reg/2006/1907/oj Accessed: 2026-10-21.

[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: 2026-10-21.

[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: 2026-10-21.

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[5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: https://www.iso.org/standard/72424.html Accessed: 2026-10-21.

[6] ISO. ISO 3864-1:2011 — Safety colours and safety signs. URL: https://www.iso.org/standard/51021.html Accessed: 2026-10-21.

[7] PubChem. National Center for Biotechnology Information (NIH/NLM), chemical compound database. URL: https://pubchem.ncbi.nlm.nih.gov/compound/7501

[8] NIST. Chemistry WebBook, SRD 69. National Institute of Standards and Technology. URL: https://webbook.nist.gov/cgi/cbook.cgi?ID=100-42-5

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[10] ECHA. European Chemicals Agency — harmonised classification inventory (CLP Annex VI). URL: https://echa.europa.eu

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

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

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

[16] Act of 26 June 1974 — Labour Code (Poland), Art. 176 § 1. Journal of Laws 2023 item 1465. URL: https://isap.sejm.gov.pl

[17] Council of Ministers of the Republic of Poland. Regulation of 3 April 2017 on the list of arduous, hazardous or health-harmful work for pregnant and breastfeeding women. Journal of Laws 2017 item 796. URL: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20170000796

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

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

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

[21] IARC. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Lyon: International Agency for Research on Cancer. URL: https://monographs.iarc.who.int

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

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

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[27] MRiPS Regulation of 12.06.2018 — NDS/NDN. Journal of Laws 2024 item 1017. URL: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20240001017 Accessed: 2026-10-21.

External links

NIST: https://webbook.nist.gov/cgi/cbook.cgi?ID=100-42-5

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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