WORKING DRAFT · 工作草案

SAFETY DATA SHEET (SDS)

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

Date: 23.09.2026 | Version: 1 | EN

toluene

toluene

CAS 108-88-3

C_7H_8 | EC 203-625-9

易 普 化 工
EAPEARL CHEM

MOLAR MASS	LOGP
92.14	2.73 (exp.)

HAZARD CLASSIFICATION (GHS / CLP)



Danger

H225 | H304 | H315 | H336 | H361d | H373

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.

WORKING DRAFT · 工作草案

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

1.1 Substance name	toluene
1.1 IUPAC name	toluene
1.1 CAS number	108-88-3
1.1 EC number	203-625-9
1.1 PubChem CID	1140
1.1 InChIKey	YXFVVABEGXRONW-UHFFFAOYSA-N
1.1 SMILES	CC1=CC=CC=C1
1.1 Molecular formula	C_7H_8 [7]
1.1 Molar mass	92.14 g/mol [7]
1.1 Exact mass	92.0626 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	+48 42 631 47 24

Toxicological Information Centre (CIT), Łódź — available 24/7

2. Hazards identification

GHS:



PPE:



Prohibitions:



Danger

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

H225	Highly flammable liquid and vapour
H361d	Suspected of damaging the unborn child
H304	May be fatal if swallowed and enters airways
H336	May cause drowsiness or dizziness
H373	May cause damage to organs through prolonged or repeated exposure
H315	Causes skin 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
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352	IF ON SKIN: Wash with plenty of water
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+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
P331	Do NOT induce vomiting
P332+P313	If skin irritation occurs: Get medical advice/attention

WORKING DRAFT 工作草案

P370+P378	In case of fire: Use appropriate media to extinguish
P403+P235	Store in a well-ventilated place: Keep cool
P403+P233	Store in a well-ventilated place: Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/container to an approved waste collection point

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). [31][32]

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	108-88-3
EC number	203-625-9
Molecular formula	C_7H_8
Concentration	≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification)
Clp index no	601-021-00-3

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][29]

Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). [1][2][29]

Eye contact

Rinse eyes with running water (min. 15 minutes). Remove contact lenses if possible. If irritation persists — consult an ophthalmologist. [1][2][29]

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. [1][2][29]

Symptoms and effects

cough, shortness of breath, headache, dizziness; skin redness and irritation. [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).

WORKING DRAFT 工作草案

5. Firefighting measures

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide (CO_2), dry chemical powder, water spray/mist. [1][2][29]
Unsuitable extinguishing media	Full/compact water jet (splashes and spreads the burning liquid, which floats on water). [1][2][29]
Specific hazards	Thermal decomposition products:CO, CO2. [30]
Advice for firefighters	Use self-contained breathing apparatus (SCBA). Full protective suit. [1][2][29]
Flash Point	4°C
Auto-ignition temperature	535°C

6. Accidental release measures

Personal precautions	Use personal protective equipment (see Section 8). Avoid breathing vapours. [1][2][29]
Environmental precautions	Prevent entry into sewers, groundwater and surface water. [1][2][29]
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][29]
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][29]
Storage temperature	Store at room temperature (15-25°C) or as indicated on the label. [1][2][29]
Humidity	Store in a dry place (<60% RH). [1][2][29]
Light	Protect from direct sunlight. [1][2][29]
Incompatible materials	Strong oxidizers, Ignition sources, open flames. [30]

8. Exposure controls/personal protection

8.1 Control parameters

OEL — NDS (Poland)	NDS = 100 mg/m³ (TWA) · NDSCh = 200 mg/m³ (STEL) — Rozp. MRiPS Dz.U. 2024 poz.1017 [42]
OEL (EU)	OEL-TWA: 50 ppm (192 mg/m³) · OEL-STEL: 100 ppm (384 mg/m³) — IOELV 2006/15/EC — “skin” notation [12]
DNEL	192 mg/m³ (worker, long-term inhalation, systemic — derived from IOELV 50 ppm per REACH Appendix R.8-13); 384 mg/kg bw/day (worker, long-term dermal, systemic) [11][12]
PNEC	0.68 mg/L (freshwater / marine / intermittent); 13.61 mg/L (STP); 16.39 mg/kg (freshwater & marine sediment, dw); 2.89 mg/kg (soil, dw) [11]

8.2 Personal protective equipment (PPE) [5][6][33]



Chemical-resistant protective gloves
EN ISO 374-1:2016+A1:2018
fluoroelastomer FKM (Viton), min. 0.4 mm — NOT nitrile (breakthrough within minutes)



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)

WORKING DRAFT 工作草稿

9. Physical and chemical properties

Property (item 9.1)	Value	Source
Physical state	Liquid	
Colour	Colourless liquid [16]	
Odour	Characteristic odour [16]	
pH (1% aqueous solution)	Not applicable	
Melting point	-95°C [7][8][9][23][37][38][39]	
Boiling point	110.6°C [7][8][9][23][37][38][39]	
Flash point	4°C (closed cup) [7][21][38][39]	
Flammability	Flam. Liq. 2 (H225) [3][10]	
Lower and upper explosion limit	1.1 – 7.1 % (V/V) (GESTIS: 1.0 – 7.8 % (V/V)) [11][21][22]	
Density (20°C)	0.867 g/cm³ [7][9][24][37][38][39]	
Vapour pressure	3.79 kPa (28.4 mmHg, 25°C) [7][8][9][25][38][39]	
Relative vapour density	3.18 [22]	
Dynamic viscosity	0.56 mPa·s [9]	
Kinematic viscosity	No data available.	
Refractive index nD^{20}	1.4961	
Auto-ignition temperature	535°C [37]	
Decomposition temperature	Not applicable	
Surface Tension	27.9 mN/m [9]	
Rozpuszcz. w wodzie	0.526 g/L (526 mg/L, 25°C) [7][26][37][38][39][40][41]	
Particle characteristics	Not applicable (REACH 9.1(r))	
Partition coefficient n-octanol/water (log value)	2.73 (exp.) [7][27][28][38][39]	
Molar mass	92.14 g/mol [7]	
Molecular formula	C_7H_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	Stable under normal storage and handling conditions.
Chemical stability	Thermally stable under recommended conditions.
Hazardous reactions	No hazardous reactions known under normal conditions.
Conditions to avoid	High temperatures, direct sunlight, moisture.
Incompatible materials	Strong oxidizers, Ignition sources, open flames.
Decomposition products	Thermal decomposition products:CO, CO2.

WORKING DRAFT · 工作稿

11. Toxicological information

LD50 (oral)	> 5000 mg/kg (rat) [11]
LD50 (dermal)	> 5000 mg/kg (rabbit) [11]
LC50 (inhalation)	28.1 mg/L (4 h) (rat) [11]
Skin irritation	Category 2 — skin irritation.
Eye irritation	Not classified for this hazard (outside the scope of the harmonised classification in CLP Annex VI; verify supplier self-classification) [3][10]
Sensitisation	Not classified as a skin sensitiser (no harmonised H317). [3]
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. [36]
IARC classification (carcinogenicity)	IARC Group 3 — not classifiable as to its carcinogenicity to humans. [local snapshot — not verified against the current IARC list] [36]
Reproductive toxicity	Category 2 (harmonised classification, Annex VI to CLP).
STOT — single exposure	Category 3 (H336): May cause drowsiness or dizziness. [3][10]
STOT — repeated exposure	Category 2 (H373): May cause damage to organs through prolonged or repeated exposure. [3][10]
Aspiration hazard	Category 1 (H304): May be fatal if swallowed and enters airways. [3][10]

12. Ecological information

Aquatic toxicity	LC_{50} (fish): 5.5 mg/L (Oncorhynchus kisutch, 96 h, flow-through). EC_{50} (Daphnia): 3.78 mg/L (Daphnia magna, 48 h). EC_{50} (algae): 12.5 mg/L (Pseudokirchneriella subcapitata, 72 h; US EPA ECOTOX, static, non-GLP). NOEC (fish): 1.4 mg/L (Oncorhynchus kisutch, 40 d). NOEC (invertebrates): 0.74 mg/L (Ceriodaphnia dubia, 7 d). LOEC (fish): 2.8 mg/L (Oncorhynchus kisutch, 40 d). LOEC (invertebrates): 2.76 mg/L (Ceriodaphnia dubia, 7 d) [11]
Persistence / biodegradability	Readily biodegradable (OECD 301 ready biodegradability test). [11]
Bioaccumulative potential	log Kow = 2.73. Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). [34][35]
Mobility in soil	Henry's law constant: 537 Pa·m³/mol (25 °C) · log Koc = 2,31 (≈ 204 L/kg); Koc 37–178 L/kg (EU RAR/ATSDR) [11]
PBT/vPvB assessment	Does not meet the PBT or vPvB criteria (REACH Annex XIII): readily biodegradable (not P/vP); BCF 90 L/kg « 2000 (not B/vB). [11]
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 (np. chemical reagents) zawierajace substancje niebezpieczne. EWC code verification required. [20]
Packaging	Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.

WORKING DRAFT 工作草稿

14. Transport information



Class 3 — Flammable liquids

UN number	UN 1294 [17]
Proper shipping name	TOLUENE [17]
Transport hazard class	3 — Flammable liquids [17]
Packing Group	II [17]
Environmental hazard	Not classified as environmentally hazardous for transport (no H400/H410/H411 in CLP Annex VI; no marine pollutant mark required) [3]
Special precautions	Handle as dangerous goods according to the assigned class (ADR/IMDG/IATA); apply the precautions appropriate to that class.
CN/HS code	2902 30 00 [19]
Notes	Dangerous goods ADR/IMDG/IATA. Flammable liquid.
EmS code (IMDG)	F-E, S-D [18]
Tunnel restriction code (ADR)	(D/E)
Limited quantities (LQ)	1 L
Environmentally hazardous (mark: fish and tree)	No

15. Regulatory information

SVHC status	Not on the SVHC Candidate List (REACH Art. 59) — verified against the full ECHA Candidate List (as at 2026-02-04). [1][15]
REACH Annex XIV	Not verified against the ECHA Authorisation List — check REACH Annex XIV. [1]
REACH Annex XVII	Subject to REACH restriction Annex XVII (entry48): Toluene — restriction on placing on the market and use in adhesives and spray paints intended for the general public at a concentration >= 0.1% by weight. [1]
IARC classification (carcinogenicity)	IARC Group 3 — not classifiable as to its carcinogenicity 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 after23.09.2026 were omitted as future (not yet applicable).

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

Scientific citations (6)

Toluene : CAS# 108-88-3 [Spanish].

Zou X, Kim T, Luo ZW et al.. Chemobiological synthesis of benzene, toluene, ethylbenzene, and xylene from glucose or glycerol.. Proceedings of the National Academy of Sciences of the United States of America (2025). DOI: 10.1073/pnas.2509568122

Saito AM, Oyarzún AP, Hyman MR et al.. Toluene-2-monooxygenase expression and trichloroethene oxidizing activity of Burkholderia vietnamiensis G4 grown on benzyl alcohol and benzyl esters.. Applied microbiology and biotechnology (2025). DOI: 10.1007/s00253-025-13569-0

Kim YK, Kwon SY, Seo YS et al.. Application of static headspace GC-MS for detection of residual trichloroethylene and toluene solvents in β-cyclodextrin.. Food research international (Ottawa, Ont.) (2024). DOI: 10.1016/j.foodres.2024.115292

Luo YH, Yang CC, Wu SC et al.. A novel agent, p-toluenesulfonamide, in the management of malignant pleural effusions.. Lung cancer (Amsterdam, Netherlands) (2025). DOI: 10.1016/j.lungcan.2025.108814

Full text of H statements

H225	Highly flammable liquid and vapour
H361d	Suspected of damaging the unborn child

WORKING DRAFT 工作稿

H304	May be fatal if swallowed and enters airways
H336	May cause drowsiness or dizziness
H373	May cause damage to organs through prolonged or repeated exposure
H315	Causes skin 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
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
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352	IF ON SKIN: Wash with plenty of water
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing; Rinse skin with water or shower
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+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
P331	Do NOT induce vomiting
P332+P313	If skin irritation occurs: 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
P403+P233	Store in a well-ventilated place: Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/container to an approved waste collection point

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%

WORKING DRAFT 工作稿

LD50	Lethal Dose, 50%
NDS	Maximum admissible concentration (workplace, PL)
NDSCh	Short-term exposure limit (PL)
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Reg. (EC) 1907/2006)
STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
TPSA	Topological Polar Surface Area
vPvB	very Persistent and very Bioaccumulative

Version history

v1 (23.09.2026)	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: 2026-09-23.

[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: 2026-09-23.

[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: 2026-09-23.

[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: 2026-09-23.

[5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: https://www.iso.org/standard/72424.html Accessed: 2026-09-23.

[6] ISO. ISO 3864-1:2011 — Safety colours and safety signs. URL: https://www.iso.org/standard/51021.html Accessed: 2026-09-23.

[7] PubChem. National Center for Biotechnology Information (NIH/NLM), chemical compound database. URL: https://pubchem.ncbi.nlm.nih.gov/compound/1140

[8] NIST. Chemistry WebBook, SRD 69. National Institute of Standards and Technology. URL: https://webbook.nist.gov/cgi/cbook.cgi?ID=C108883&Mask=4

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

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

[11] ECHA. REACH Registration Dossier (registered substance, acute toxicity study record). Helsinki: European Chemicals Agency. URL: https://chem.echa.europa.eu/100.003.297/dossier-view/89f31bda-0e16-488b-a598-6b719c64dbb3

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

[13] European Parliament and Council. Regulation (EC) No 273/2004 on drug precursors, Annex I. OJ EU L 47/1. URL: https://eur-lex.europa.eu/eli/reg/2004/273/oj

[14] Council of the European Union. Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Union and third countries in drug precursors. OJ EU L 22/1. URL: https://eur-lex.europa.eu/eli/reg/2005/111/oj

[15] ECHA. Candidate List of Substances of Very High Concern for Authorisation (REACH Art. 59). Helsinki: European Chemicals Agency. URL: https://echa.europa.eu/candidate-list-table

[16] IPCS. International Chemical Safety Cards (ICSC). Geneva: World Health Organization and International Labour Organization. URL: https://www.inchem.org/documents/icsc/icsc/eics0078.htm

[17] UNECE. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), 2025 edition (ECE/TRANS/352). Geneva: United Nations. URL: https://unece.org/adr

[18] IMO. International Maritime Dangerous Goods (IMDG) Code, 2024 ed. (Amendment 42-24, Res. MSC.556(108)). London: International Maritime Organization. URL: https://www.imo.org

[19] European Commission. Combined Nomenclature (Council Regulation (EEC) No 2658/87). Chapter 29. OJ EU L 256. URL: https://eur-lex.europa.eu/eli/reg/1987/2658/oj

[20] 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

[21] NIOSH. Pocket Guide to Chemical Hazards. Cincinnati: National Institute for Occupational Safety and Health. URL: https://www.cdc.gov/niosh/npg/npgd0619.html

[22] IFA. GESTIS Substance Database. Institut für Arbeitsschutz der DGUV. URL: https://gestis-database.dguv.de/data?name=010070

[23] Rumble, J.R., ed. CRC Handbook of Chemistry and Physics. 105th ed. Boca Raton: CRC Press, 2024. URL: https://hbcp.chemnetbase.com

[24] U.S. Coast Guard. CHRIS - Chemical Hazards Response Information System. Washington, DC: U.S. Department of Homeland Security, 1999. URL: https://cameochemicals.noaa.gov

[25] Daubert, T.E., and R.P. Danner. Physical and Thermodynamic Properties of Pure Chemicals: Data Compilation. Washington, DC: Taylor & Francis, 1989.

[26] Sanemasa, I., M. Araki, T. Deguchi, and H. Nagai. "Solubility Measurements of Benzene and the Alkylbenzenes in Water by Making Use of Solute Vapor." Bulletin of the Chemical Society of Japan 55, no. 4 (1982): 1054-1062. URL: https://doi.org/10.1246/bcsj.55.1054

[27] Hansch, C., A. Leo, and D. Hoekman. Exploring QSAR: Hydrophobic, Electronic, and Steric Constants. Washington, DC: American Chemical Society, 1995.

[28] Sangster, J. "Octanol-Water Partition Coefficients of Simple Organic Compounds." Journal of Physical and Chemical Reference Data 18, no. 3 (1989): 1111-1229. URL: https://doi.org/10.1063/1.555833

[29] 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

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

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

WORKING DRAFT · 工作草稿

[32] 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

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

[34] 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

[35] 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

[36] IARC (International Agency for Research on Cancer). 1999. "Toluene." In Re-evaluation of Some Organic Chemicals, Hydrazine and Hydrogen Peroxide. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 71. Lyon: IARC. URL: https://monographs.iarc.who.int/

[37] DECHEMA, PTB, and BAM. CHEMSAFE - Database of Evaluated Safety Characteristics for the Avoidance of Explosions. Frankfurt am Main: DECHEMA e.V.; Braunschweig/Berlin: Physikalisch-Technische Bundesanstalt and Bundesanstalt fur Materialforschung und -prufung. URL: https://www.chemsafe.ptb.de

[38] OECD. eChemPortal — Global Portal to Information on Chemical Substances. URL: https://www.echemportal.org

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

[40] Sorkun, M.C., A. Khetan, and S. Er. "AqSolDB, a Curated Reference Set of Aqueous Solubility and 2D Descriptors for a Diverse Set of Compounds." Scientific Data 6 (2019): 143. URL: https://doi.org/10.1038/s41597-019-0151-1

[41] Bradley, Jean-Claude, Andrew S. I. D. Lang, and Antony J. Williams. Open Notebook Science Aqueous Solubility Dataset (community-curated compilation of experimental measurements).

[42] 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: 2026-09-23.

External links

NIST: https://webbook.nist.gov/cgi/cbook.cgi?ID=108-88-3

Wikidata: https://www.wikidata.org/wiki/Q15779

NFPA 704 (supplementary information — NFPA/USA system; not a required element of an EU safety data sheet under REACH Annex II)



Legal notice: This document was generated automatically from data provided by PubChem (NIH), ECHA, NIST WebBook, ChemSpider (RSC), Wikidata and other public databases. It DOES NOT REPLACE an approved Safety Data Sheet (SDS) compliant with Regulation (EC) No 1907/2006 (REACH). Before using the substance, verify the data against the manufacturer's current SDS.
Generator: Document generated automatically from ECHA harmonised classification (Annex VI to CLP) and public physicochemical databases.
Author: www.MolGod.org — platform for automated safety data sheets (SDS).
Issue date: 23.09.2026 | Document version: 1