

SAFETY DATA SHEET (SDS)

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

Date: 21.07.2026 | Version: 3 | EN

ethylene

ethene

CAS 74-85-1

C₂H₄

EC 200-815-3



MOLAR MASS

28.05

LOGP

1.2

HAZARD CLASSIFICATION (GHS / CLP)



Danger

H220

H336

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

1.1 Substance name	ethylene
1.1 IUPAC name	ethene
1.1 CAS number	74-85-1
1.1 EC number	200-815-3
1.1 PubChem CID	6325
1.1 InChIKey	VGGSQFUCUMXWEO-UHFFFAOYSA-N
1.1 SMILES	C=C
1.1 Molecular formula	C ₂ H ₄ ^[7]
1.1 Molar mass	28.05 g/mol ^[7]
1.1 Exact mass	—

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

Name	ADVANCED CHEMISTRY R&D SOLUTIONS
Address	ul. Juliana Przybosa 8, 21-400 Łuków, Poland
Tax ID (NIP)	
Tel.	
E-mail	
Website	

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][9]}

H220	Extremely flammable gas
H336	May cause drowsiness or dizziness

Precautionary statements (P) ^{[3][4][9]}

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P271	Use only outdoors or in a well-ventilated area
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P403+P233	Store in a well-ventilated place: Keep container tightly closed
P501	Dispose of contents/container to an approved waste collection point

3. Composition/information on ingredients

Substance type	pure substance
CAS Number	74-85-1
EC number	200-815-3
Molecular formula	C ₂ H ₄
Concentration	≥99% (typical reagent-grade purity — to be confirmed by the supplier's specification)

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][11]}

Skin contact

Remove contaminated clothing. Rinse skin with soap and water (min. 15 minutes). ^{[1][2][11]}

Eye contact

Rinse eyes with running water (min. 15 minutes). Remove contact lenses if possible. If irritation persists — consult an ophthalmologist. ^{[1][2][11]}

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][11]}

Symptoms and effects

cough, shortness of breath, headache, dizziness. ^{[3][9]}

Notes for physician

Requires verification

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

5. Firefighting measures

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide (CO ₂), dry chemical powder, water spray/mist. ^{[1][2][11]}
Unsuitable extinguishing media	Full/compact water jet (splashes and spreads the burning liquid, which floats on water). ^{[1][2][11]}
Specific hazards	Thermal decomposition products: CO, CO ₂ . ^[12]
Advice for firefighters	Use self-contained breathing apparatus (SCBA). Full protective suit. ^{[1][2][11]}
Flash Point	-100°C ^[8]

6. Accidental release measures

Personal precautions	Use personal protective equipment (see Section 8). Avoid breathing gas. ^{[1][2][11]}
Environmental precautions	Prevent entry into sewers, groundwater and surface water. ^{[1][2][11]}
Methods for containment and cleaning up	Ventilate the area. Stop the flow if it is safe to do so. Remove ignition sources. ^{[1][2][11]}
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][11]}
Storage temperature	Store at room temperature (15-25°C) or as indicated on the label. ^{[1][2][11]}
Humidity	Store in a dry place (<60% RH). ^{[1][2][11]}

Light	Protect from direct sunlight. ^{[1][2][11]}
Incompatible materials	Strong oxidizers, Ignition sources, open flames. ^[12]

8. Exposure controls/personal protection

8.1 Control parameters

OEL — NDS (Poland)	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.
OEL (EU)	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.
DNEL	No data available.
PNEC	No data available.

8.2 Personal protective equipment (PPE) ^{[5][6][13]}

 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 AX filter (low-boiling organic vapours)	 Closed safety footwear with toe protection EN ISO 20345:2022 (S2/S3)
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9. Physical and chemical properties

Property (item 9.1)	Value	Source
Physical state	Gaz (w warunkach normalnych)	
Colour	Colorless gas ^[7]	
Odour	Sweet ^[7]	
pH (1% aqueous solution)	Not applicable	
Melting point	-169.11°C ^[8]	
Boiling point	-103.8°C ^[8]	
Flash point	-100°C ^[8]	
Flammability	Flam. Gas 1 (H220) ^{[3][9]}	
Lower and upper explosion limit	No data available.	
Density (20°C)	Not applicable (REACH 9.1(q))	
Vapour pressure	No data available.	
Relative vapour density	0.97 ^[7]	
Kinematic viscosity	Not applicable (REACH 9.1(l))	
Auto-ignition temperature	No data available.	
Decomposition temperature	Not applicable	
Water solubility (20°C)	0.131 g/L, 25°C ^[8]	
Particle characteristics	Not applicable (REACH 9.1(r))	

Property (item 9.1)	Value	Source
Partition coefficient n-octanol/water (log value)	1.2 ^[8]	
Molar mass	28.05 g/mol ^[7]	
Molecular formula	C ₂ H ₄ ^[7]	

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, CO ₂ .

11. Toxicological information

LD50 (oral)	No data available.
LD50 (dermal)	No data available.
LC50 (inhalation)	No data available.
Skin irritation	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}
Eye irritation	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}
Sensitisation	No data available.
Mutagenicity	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}
Carcinogenicity	No harmonised CLP classification as carcinogenic; for carcinogenicity assessment see the IARC classification below. ^[16]
IARC classification (carcinogenicity)	IARC Group 3 — not classifiable as to its carcinogenicity to humans. [local snapshot — not verified against the current IARC list] ^[16]
Reproductive toxicity	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}
STOT — single exposure	Category 3 (H336): May cause drowsiness or dizziness. ^{[3][9]}
STOT — repeated exposure	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}
Aspiration hazard	Not classified (no harmonised classification in CLP Annex VI) ^{[3][9]}

12. Ecological information

Aquatic toxicity	No data available.
Persistence / biodegradability	No data available.
Bioaccumulative potential	log Kow = 1.2 ^[8] . Low bioaccumulation potential (log Kow < 4.5 — PBT/vPvB screening criterion per ECHA Guidance R.11). ^{[14][15]}
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. ^[10]
Packaging	Cleaned packaging may be recycled. Contaminated packaging must be treated as hazardous waste.

14. Transport information



Class 3 — Flammable liquids

UN number	VERIFICATION REQUIRED — no verified UN assignment.
Transport hazard class	Suggested from GHS classification — VERIFICATION REQUIRED.
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	CN/HS code: verification required in the Eurostat Combined Nomenclature.
Notes	NOTE: the GHS classification indicates the substance may be subject to dangerous goods transport regulations (ADR/IMDG/IATA). Do NOT assume absence of restrictions — verify the UN number before shipping.

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]
Verification date	2026-07-21

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 21.07.2026 were omitted as future (not yet applicable).

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

Full text of H statements

H220	Extremely flammable gas
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Full text of P statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P271	Use only outdoors or in a well-ventilated area
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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)
STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
TPSA	Topological Polar Surface Area
vPvB	very Persistent and very Bioaccumulative

Version history

v3 (21.07.2026)	Based on ECHA harmonised classification (Annex VI to CLP, ATP 23).
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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: 2026-07-21.
- [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: 2026-07-21.
- [3] EP and Council. Reg.(EC) 1272/2008 (CLP) + ATP 23. OJ EU L 353/2008. URL: <https://eur-lex.europa.eu/eli/reg/2008/1272/oj> Accessed: 2026-07-21.
- [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: 2026-07-21.
- [5] ISO. ISO 7010:2019 — Graphical symbols. Safety signs. URL: <https://www.iso.org/standard/72424.html> Accessed: 2026-07-21.
- [6] ISO. ISO 3864-1:2011 — Safety colours and safety signs. URL: <https://www.iso.org/standard/51021.html> Accessed: 2026-07-21.
- [7] PubChem. National Center for Biotechnology Information (NIH/NLM), chemical compound database. URL: <https://pubchem.ncbi.nlm.nih.gov/compound/6325> Accessed: 2026-07-21.
- [8] Rumble, J.R., ed. CRC Handbook of Chemistry and Physics. 105th ed. Boca Raton: CRC Press, 2024. URL: <https://hcbp.chemnetbase.com> Accessed: 2026-07-21.

- [9] ECHA. European Chemicals Agency — harmonised classification inventory (CLP Annex VI). URL: <https://echa.europa.eu> Accessed: 2026-07-21.
- [10] 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> Accessed: 2026-07-21.
- [11] 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 Accessed: 2026-07-21.
- [12] Urban, P.G., ed. Bretherick's Handbook of Reactive Chemical Hazards. 8th ed. Oxford: Academic Press.
- [13] CEN. Personal protective equipment standards (EN ISO 374-1, EN 166, EN 149, EN 14387, EN ISO 20345). Brussels: European Committee for Standardization.
- [14] 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> Accessed: 2026-07-21.
- [15] 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> Accessed: 2026-07-21.
- [16] IARC. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Lyon: International Agency for Research on Cancer. URL: <https://monographs.iarc.who.int> Accessed: 2026-07-21.
- [17] 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: 2026-07-21.

External links

NIST: <https://webbook.nist.gov/cgi/cbook.cgi?ID=74-85-1>

ChEMBL: https://www.ebi.ac.uk/chembl/compound_report_card/CHEMBL117822

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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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).

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