

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



! SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

| | |
|---------------------------|------------------|
| Name of product | Ethylene |
| Art-Nr(n): | 1300-1305, 70130 |
| Name of substance | ethylene |
| Index No | 601-010-00-3 |
| EC No | 200-815-3 |
| REACH registration number | 01-2119462827-27 |
| CAS No | 74-85-1 |

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Remark

Restricted to professional users.

Recommended intended purpose(s)

Refrigerant.
Fuel gas.
Basic substance.
Laboratory reagent.
Test gas.

1.3. Details of the supplier of the safety data sheet

Manufacturer/distributor

GHC Gerling, Holz & Co. Handels GmbH
Ruhrstraße 113, D-22761 Hamburg
Phone +49 40 853 123-0, Fax +49 40 853 123-66
E-Mail hamburg@ghc.de
Internet www.ghc.com

Advice

GHC Gerling, Holz & Co. Handels GmbH
Phone +49 40 853 123-0
Fax +49 40 853 123-66
E-mail (competent person):
msds@ghc.de

1.4. Emergency telephone number

Emergency advice

Giftinformationszentrum Mainz
Phone +49 6131 19240

! SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

! Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

| Hazard classes and Hazard categories | Hazard Statements | Classification procedure |
|--------------------------------------|-------------------|--------------------------|
|--------------------------------------|-------------------|--------------------------|

| | |
|-------------------|------|
| Flam. Gas 1A | H220 |
| Press. Gas (Liq.) | H280 |
| STOT SE 3 | H336 |

! Hazard statements for physical hazards

| | |
|------|---|
| H220 | Extremely flammable gas. |
| H280 | Contains gas under pressure; may explode when heated. |

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130

Hazard statements for health hazards

H336 May cause drowsiness or dizziness.

Additional hints

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]



GHS02



GHS07

! Signal word

Danger

! Hazard statements for physical hazards

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode when heated.

Hazard statements for health hazards

H336 May cause drowsiness or dizziness.

Precautionary Statements

! Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not inhale gas/vapours.

! Response

P304 + P340 IF INHALED: Move person to fresh air and ensure unhindered breathing.

P315 Get immediate medical advice/attention.

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources.

! Storage

P403 Store in a well-ventilated place.

Hazardous ingredients for labelling

ethylene

2.3. Other hazards

! Information pertaining to special dangers for human and environment

High concentrations may cause asphyxiation.

May form explosive mixtures with air.

Contact with liquid may cause cold burns/frostbite.

Receptacle under pressure.

Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

! SECTION 3: Composition/ information on ingredients

3.1. Substances

! Description

Content: >= 99,9 %

**Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH)**

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130

CAS No 74-85-1 ethylene
EC No 200-815-3
Index No 601-010-00-3
REACH registration number 01-2119462827-27

3.2. Mixtures
not applicable

! SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.
Adhere to personal protective measures when giving first aid.
Seek medical advice immediately.

! In case of inhalation

Remove the affected person into fresh air and keep him immobile.
In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

! In case of skin contact

In case of frostbite rinse with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw with lukewarm water. Apply a sterile dressing. Obtain medical assistance.
In case of contact with skin wash off immediately and for a long time (at least 15 minutes) with plenty of water.

! In case of eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of ingestion

Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

! Physician's information / possible symptoms

Headache
Nausea
Confusion
Dizziness
Contact with liquid may cause cold burns/frostbite.

! Physician's information / possible dangers

In low concentrations may cause narcotic effects.
Risk of cerebral oedema

4.3. Indication of any immediate medical attention and special treatment needed

! Treatment (Advice to doctor)

Treat symptoms.
Do not give any preparations of the adrenalin-ephedrine group.
Monitor circulation.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Dry powder
Water spray jet

Unsuitable extinguishing media

carbon dioxide
Full water jet

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130

5.2. Special hazards arising from the substance or mixture

In case of fire formation of dangerous gases possible.
Formation of explosive gas mixtures in contact with air.
In the event of fire the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO₂)

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).
Wear full protective clothing.

Additional information

Cool endangered containers with water spray jet.
Exposure to fire may cause rupture / explosion of the containers.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.
Extinguish any other fire.
Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

! SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Evacuate area.
Keep people away and stay on the upwind side.
Keep away sources of ignition.

! For emergency responders

Move people to safety.
Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).
Personal protection by wearing close-fitting protective clothing and breathing apparatus.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/groundwater.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
If necessary, secure leaky pressure receptacles using a salvage container.
Suppress gases/vapours/mists with water spray jet
Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Ensure adequate air ventilation.
Allow to vaporise.

6.4. Reference to other sections

Disposal: see section 13
Personal protection equipment: see section 8

! SECTION 7: Handling and storage

7.1. Precautions for safe handling

! Advice on safe handling

Use only in thoroughly ventilated areas.
Transfer and handle only in enclosed systems.
Containers' temperature should not be increased above 50 °C.
The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.
Take measures against electrostatically charging.

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021

Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130

Use antistatic tools.
Prevent cylinders from falling over.
Avoid release to the environment.
Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backflow into the container.
Entering of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.

! General protective measures

Do not inhale gases/vapours/aerosols.

! Hygiene measures

At work do not eat, drink or smoke.
Remove contaminated clothing and protective equipment.
Wash hands before breaks and after work.

! Advice on protection against fire and explosion

The product is combustible.
Because of risk of explosion avoid vapours getting into cellar, sewage system and holes.
Formation of explosive gas mixtures in contact with air.
Pay attention to general rules of internal fire prevention.
Use explosion-proof equipment / fittings and non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in closed original container.
Ventilate store-rooms thoroughly.
Only use containers that are approved specifically for the substance/product.
Suitable materials: Normalised carbon steel, tempered alloy steel, aluminium alloys, austenitic stainless steels.
Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, austenitic stainless steels.
Further material details see ISO 11114.
All regulations and local requirements for the storage of containers have to be respected.

Advice on storage compatibility

Do not store together with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuff.
Do not store together with explosives.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with toxic liquids or toxic solids.
Do not store together with food.
Do not store together with oxidizing agents.

! Further information on storage conditions

Protect from heat and direct solar radiation.

7.3. Specific end use(s)

! Recommendation(s) for intended use

An exposure scenario is not required.

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021

Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



! SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

! Respiratory protection

Breathing apparatus in the event of high concentrations.

Keep self contained breathing apparatus readily available for emergency use.

Do not use any filter apparatus.

Respiratory protection complying with EN 137.

In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation due to displacement of oxygen

! Hand protection

Leather gloves

Safety gloves according to EN 388

Eye protection

Protective goggles according to EN 166, in case of increased risk add protective face shield.

Other protection measures

Safety shoes with steel toecap.

Body covering work clothing or chemical resistant suit at increased risk.

Appropriate engineering controls

Transfer and handle only in enclosed systems.

! SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Gaseous / liquefied under pressure.

Colour

colourless

Odour

sweetish

Odour threshold

not determined

Important health, safety and environmental information

| | Value | Temperature | at | Method | Remark |
|---------------------------|----------------|-------------|----------|--------|--------|
| pH value | not applicable | | | | |
| Acid number | not applicable | | | | |
| boiling point | -103,8 °C | | 1013 hPa | | |
| melting point | -169,2 °C | | | | |
| Flash point | not applicable | | | | |
| Vapourisation rate | not applicable | | | | |
| Flammable (solid) | not applicable | | | | |

Safety Data Sheet according to Regulation (EC)**No. 1907/2006 (REACH)**

Printed 27.07.2021

Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130

| | Value | Temperature | at | Method | Remark |
|--|----------------|-------------|----------|--------|----------------------------|
| Flammability (gas) | | | | | flammable. |
| Ignition temperature | 440 °C | | | | |
| Self ignition temperature | not determined | | | | |
| Lower explosion limit | 2,4 Vol-% | | | | |
| Upper explosion limit | 32,6 Vol-% | | | | |
| Vapour pressure | 40900 hPa | 0 °C | | | |
| Relative density | 1,2611 g/l | 0 °C | 1013 hPa | | |
| Vapour density | 0,97 | | | | air = 1 |
| Solubility in water | 130 mg/l | 20 °C | | | |
| Solubility/other | | | | | soluble in organic solvent |
| Partition coefficient n-octanol/water (log P O/W) | 1,13 | | | | |
| Decomposition temperature | not determined | | | | |
| Viscosity | not applicable | | | | |
| Oxidising properties | no | | | | |
| Explosive properties | no | | | | |
| 9.2. Other information | no | | | | |

! SECTION 10: Stability and reactivity**10.1. Reactivity**

See section "Possibility of hazardous reactions".

10.2. Chemical stability

Stable under recommended conditions of use and storage (see section 7).

Risk of polymerisation.

10.3. Possibility of hazardous reactions

Reactions with numerous chemical compounds.

Reactions with catalysts.

Violent reactions with air and oxidising agents.

Risk of polymerisation.

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021

Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



10.4. Conditions to avoid

Heat sources / heat - risk of bursting.

Sources of ignition.

10.5. Incompatible materials

! Substances to avoid

Acetylene

Chlorine

hydrochloric gas

Fluorine

Copper, brass and other copper alloys.

10.6. Hazardous decomposition products

When handled and stored appropriately, no dangerous decomposition products are known.

! SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritation/Sensitization

| | Value/Validation | Species | Method | Remark |
|---|-------------------|------------|--------|---------------------------------|
| LD50 acute oral | | | | Study technically not feasible. |
| LD50 acute dermal | | | | Study technically not feasible. |
| LC50 acute inhalation | > 57000 ppm (4 h) | Rat (male) | | |
| Skin irritation | | | | Study technically not feasible. |
| Eye irritation | | | | Study technically not feasible. |
| Skin sensitization | | | | Study technically not feasible. |
| Sensitization respiratory system | | | | not determined |

Subacute Toxicity - Carcinogenicity

| | Value | Species | Method | Validation |
|----------------------------|--|---------------------|----------|------------|
| Subacute Toxicity | LOAEC 10 ppm (28 d) Sub-acute inhalation toxicity 6 h/d, 5 d/w | rat (male) | | |
| Subchronic Toxicity | LOAEC 300 ppm (91 d) Inhalation 6 h/d, 5 d/w | Rat (male / female) | OECD 413 | |
| Chronic Toxicity | NOAEC 3000 ppm (2 a) Inhalation 6 h/d, 5 d/w | Rat (male / female) | OECD 453 | |

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021

Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



| | Value | Species | Method | Validation |
|------------------------------|--|---------------------|----------|---|
| Mutagenicity | NOAEL 3000 ppm (28 d) Inhalation. 6 h/d, 5 d/w | Rat | OECD 474 | Based on available data, the classification criteria are not met. |
| Reproduction-Toxicity | NOAEC 5000 ppm Inhalation. 6 h/d | Rat (male / female) | OECD 421 | Based on available data, the classification criteria are not met. |
| Carcinogenicity | NOAEC 3003 ppm (2 a) Inhalation. 6 h/d, 5 d/w | Rat (male / female) | OECD 453 | Based on available data, the classification criteria are not met. |

! Specific target organ toxicity (single exposure)

Based on available data, the classification criteria are not met.

! Specific target organ toxicity (repeated exposure)

Based on available data, the classification criteria are not met.

Aspiration hazard

not applicable

! Experiences made from practice

May cause frostbite.

Gases have a suffocating effect.

Inhalation causes narcotic effect/intoxication.

! SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

| | Value | Species | Method | Validation |
|-----------------|-----------------------|------------------|--------|------------|
| Fish | LC50 126 mg/l (96 h) | | QSAR | |
| Daphnia | EC50 62,5 mg/l (48 h) | | QSAR | |
| Algae | EC50 30,3 mg/l (96 h) | | QSAR | |
| Bacteria | EC50 1760,9 mg/l | activated sludge | QSAR | |

12.2. Persistence and degradability

| | Elimination rate | Method of analysis | Method | Validation |
|---------------------------------|------------------|--------------------|--------|--------------------|
| Biological degradability | 50 % (2,9 d) | | QSAR | readily degradable |

12.3. Bioaccumulative potential

Bioaccumulation improbable.

Because of the n-octanol/water distribution coefficient (log K o/w) accumulation in organisms is not expected.

Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



12.4. Mobility in soil

High mobility
Adsorption in soil is not likely.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects

ODP: 0
GWP: 4

! General regulation

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste code No.

16 05 04*

Name of waste

gases in pressure containers (including halons) containing hazardous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

Recommendations for the product

Dispose of as hazardous waste.

Recommendations for packaging

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

! SECTION 14: Transport information

| | ADR/RID | IMDG | IATA-DGR |
|----------------------------------|----------|----------|----------|
| 14.1. UN number | 1962 | 1962 | 1962 |
| 14.2. UN proper shipping name | ETHYLENE | ETHYLENE | Ethylene |
| 14.3. Transport hazard class(es) | 2.1 | 2.1 | 2.1 |
| 14.4. Packing group | - | - | - |
| 14.5. Environmental hazards | No | No | No |

14.6. Special precautions for user

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

No transport as bulk according IBC - Code.

Land and inland navigation transport ADR/RID

Hazard label(s) 2.1
Tunnel restriction code B/D
Classification code 2F

Marine transport IMDG

Ems: F-D, S-U

**Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH)**

Printed 27.07.2021
Revision 27.07.2021 (GB) Version 13.0

Ethylene

1300-1305, 70130



Air transport ICAO/IATA-DGR

Cargo aircraft only: Package max. 150 kg.

! SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulations (EU)

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII No 40.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

! VOC standard

VOC content >=99,9 % 0 °C 40900 hPa

15.2. Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

! SECTION 16: Other information

Recommended uses and restrictions

National and local regulations concerning chemicals shall be observed.

Further information

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 12.0

! Sources of key data used

For the preparation of this safety data sheet, information from our suppliers as well as data from the "database of registered substances" of the European Chemicals Agency (ECHA) and the "GESTIS Database of substances" were used.