

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

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 (Poison Control Centre) 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 1	H220
Liquef. Gas	H280
STOT SE 3	H336

Hazard statements for physical hazards

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

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 if 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 breathe gas/vapours.

! Response

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for 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 labeling

ethylene

2.3. Other hazards

! Information pertaining to special dangers for human and environment

In high concentrations may cause asphyxiation.

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 %

CAS No 74-85-1

ethylene

EC No 200-815-3

Index No 601-010-00-3

REACH registration number 01-2119462827-27

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130



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 casualty into fresh air and keep him immobile.
Seek medical treatment immediately.
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 contact with skin wash off with warm water.
In case of frostbite rinse with plenty of water. Don't remove clothing.
In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

In case of eye contact

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

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

The following symptoms may occur in case of strong exposition:

Eye defects
Shortness of breath
Headache
Nausea
Confusion
Dizziness
Contact with liquid may cause cold burns/frostbite.

Physician's information / possible dangers

In low concentrations may cause narcotic effects.

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

! Treatment (Advice to doctor)

Treat symptoms.
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 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

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 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 containers to rupture / explode.

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

Remove persons 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.

Eliminate all ignition sources if safe to do so.

6.2. Environmental precautions

If possible, stop flow of product.

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 in a salvage packaging.

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

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130

! 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 may not be increased above 50 °C.
Do not heat with open flames.
The working pressure in the receptacle must not exceed 2/3 of the test pressure of the pressure receptacle.
Take measures against electrostatically charging.
Use antistatic tools.
Treatment only in suitable rooms and systems.
Prevent cylinders from falling over.
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 backfeed into the container.
Suck back 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.
Containers and installations thoroughly earthing (grounding).

General protective measures

Do not inhale gases.

! Hygiene measures

At work do not eat, drink and smoke.
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.
Take precautionary measures against static discharges.
Formation of explosive gas mixtures in 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.
Other 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 with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuffs.
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.

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130



! Further information on storage conditions

Ensure valve protection device is correctly fitted.
Store only in original container at temperature of 50°C maximum (=122°F).
Keep container tightly closed and store at cool and aired place.
Prevent cylinders from falling over.
Protect of heat.

7.3. Specific end use(s)

Recommendation(s) for intended use

No further recommendations.

! SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

! Respiratory protection

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 by edging out of air oxygen

! Hand protection

Leather gloves
Protective gloves complying with EN 374.
Safety gloves according 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 toe.
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

260 ml/m³

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	not applicable				
Acid number	not applicable				

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130

	Value	Temperature	at	Method	Remark
boiling point	-103,8 °C		1013 hPa		
melting point	-169,1 °C				
Flash point	not determined				
Vapourisation rate	not applicable				
Flammable (solid)	not applicable				
Flammability (gas)					flammable.
Ignition temperature	440 °C				
Self ignition temperature	450 °C				
Lower explosion limit	2,4 Vol-%				
Upper explosion limit	32,6 Vol-%				
Vapour pressure	40900 hPa	0 °C			
Relative density	1,178 kg/m ³	15 °C	1013 hPa		
Vapour density	0,975				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 dynamic	not applicable				
Oxidising properties	no				
Explosive properties	no				
9.2. Other information	no				

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130

! 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

May react violently with oxidants.

May form an explosive mixture with air.

polymerisation

10.4. Conditions to avoid

May decompose violently at high temperature and/or pressure or in the presence of a catalyst.

Heat sources / heat - risk of bursting.

Avoid contact with open flames, glowing metal surfaces, etc..

10.5. Incompatible materials

! Substances to avoid

Acetylene

Chlorine

hydrochloric gas

Fluorine

Air

Oxidising agent

Nitrogen oxides (NOx)

Copper, brass and other copper alloys.

10.6. Hazardous decomposition products

No hazardous decomposition products known.

Thermal decomposition

Remark No decomposition if used as directed.

! 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.			

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130



	Value/Validation	Species	Method	Remark
Eye irritation	Study technically not feasible.			
Skin sensitization	Study technically not feasible.			
Sensitization respiratory system	not determined			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Subchronic Toxicity	NOAEC > 10000 ppm (91 d) Inhalation 6 h/d, 5 d/w	Rat (male / female)	OECD 413	No effects of toxicological significance.
Mutagenicity	Inhalation 0 - 3000 ppm (28 d) Inhalation. 6 h/d, 5 d/w	Rat	OECD 474	No experimental information on genotoxicity in vivo available.
Reproduction-Toxicity	NOAEC 5000 ppm Inhalation. 6 h/d	Rat (male / female)	OECD 421	No reproductive toxicity.
Carcinogenicity	NOAEC 3000 ppm (2 a) Inhalation. 6 h/d, 5 d/w	Rat	OECD 453	No indications of carcinogenic effects are available from long-term trials.

Specific target organ toxicity (single exposure)

May cause narcotic effects in low concentrations. Symptoms may include: dizziness, headache, nausea and incoordination.

! Specific target organ toxicity (repeated exposure)

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with repeated exposure.

! Aspiration hazard

not applicable

Toxicity test (Additional information)

No experimental indication of genotoxicity in vitro (Ames-test negative).

Experiences made from practice

May cause frostbite.

Gases have a suffocating effect.

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130

! SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 126 mg/l (96 h)	Fish	QSAR	
Daphnia	EC50 62,5 mg/l (48 h)	Daphnia	QSAR	
Algae	EC50 20,33 mg/l (96 h)	Algae	QSAR, cell reproduction	
Bacteria	not determined			

12.2. Persistence and degradability

	Elimination rate	Method of analysis	Method	Validation
Physico-chemical degradability	At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.			
Biological degradability	50 % (2,9 d)		QSAR	readily degradable
	Information on biodegradation processes is available.			

12.3. Bioaccumulative potential

No high bioaccumulation potential.

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

12.4. Mobility in soil

Adsorption in the soil is not likely.

Because of its high volatility, it is unlikely that the product soil, water caused.

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

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.

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene

1300-1305, 70130

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

Air transport ICAO/IATA-DGR

Cargo aircraft only.

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 % 0 °C 40900 hPa

15.2. Chemical Safety Assessment

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

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

An exposure scenario is not required.

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

Printed 23.05.2018
Revision 22.05.2018 (GB) Version 12.0

Ethylene
1300-1305, 70130



! 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: 11.1

! 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) were used.