ETHYLENE REFRIGERATED LIQUID

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Date of issue: 5/5/2017 Revision date: Supersedes: 9/9/2015 Version: 13.3

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

1.1. Product identifier

Product form	:	Substance
Substance name	:	ETHYLENE REFRIGERATED LIQUID
EC No	:	200-815-3
CAS No	:	74-85-1
REACH registration No	:	Total Olefins Antwerp (01-2119462827-27-0034) - Naphtachimie (01-2119462827-27-0038) - Total Petrochemicals & Refining (01-2119462827-27-0043) - Total Research & Technology Feluy (01-2119462827-27-0049) (01-2119462827-27-0157) - TP Development (01-2119462827-27-0146)
Type of product	:	Ethylene is sold in two forms: 1) COMPRESSED ETHYLENE (distributed by pipeline) - UN number: 1962 2) REFRIGERATED LIQUID ETHYLENE (in tanks) - UN number: 1038 Two different SDSs are available, if the SDS supplied does not correspond with the product form, please request the correct SDS
Synonyms	:	74-85-1
Product group	:	-

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

1.2.1. Relevant identified uses

Main use category	:	Professional use
Use of the substance/mixture	:	Distribution of substance Manufacture of substances Synthesis intermediate Formulation & (re)packing of substances and mixtures Polymer production Polymer preparations and compounds Rubber production and processing Functional Fluids Use in laboratories Use as a fuel

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

REFINING & CHEMICALS BRANCH
TOTAL PETROCHEMICALS & REFINING SA/NV
Rue de l'Industrie 52 Nijverheidsstraat - B-1040 BRUSSELS - BELGIUM
T +32 (0)2.288.91.11
rc.fer-sds@total.com - www.total.com

1.4. Emergency telephone number

Emergency number : Emergency call Carechem 24 International :
• for English speaking countries: +44 (0) 1235 239 670
• for Europe (in local languages): + 33 1 49 00 00 49
• for Africa and Middle East: + 44 (0) 1235 239 671• for China:
+ 86 10 5100 3039
• for Asia Pacific (Hong-Kong, Singapore, Taiwan, Philippines, India, Vietnam, Sri Lanka, Japan, Korea, Malaysia, Indonesia, Thailand) :
+ 65 3158 1074

Country	Organisation/Company	Address	Emergency number	Comment
	National Poisons Emergency number		08 45 46 47	
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 '+353 1 809 2166 (public, 8am - 10pm, 7/7)	

Quick-FDS [18226-08918-32691-015973] - 2017-11-24 - 02:28:39

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable gases, Category 1	H220
Gases under pressure : Compressed gas	H280
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

In high concentrations vapours cause anaesthetic and narcotic effect. Contact with the liquefied gas may cause frostbite. Extremely flammable gas. Take precautionary measures against static discharge during blending and transfer operations. In use may form flammable/explosive vapour-air mixture. Risk of ignition at distance.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS04 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) :
H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H336 - May cause drowsiness or dizziness

Precautionary statements (CLP) :
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P243 - Take precautionary measures against static discharge
P273 - Avoid release to the environment
P281 - Use personal protective equipment as required
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381 - Eliminate all ignition sources if safe to do so
P410+P403 - Protect from sunlight. Store in a well-ventilated place

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : ETHYLENE REFRIGERATED LIQUID
CAS No : 74-85-1
EC No : 200-815-3

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ethylene	(CAS No) 74-85-1 (EC No) 200-815-3 (EC Index No) 601-010-00-3	> 99.9	Flam. Gas 1, H220 Press. Gas STOT SE 3, H336

Full text of H-statements: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Get medical advice/attention if you feel unwell.

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor. If breathing is difficult, give oxygen. If breathing stops, give artificial respiration. Place under medical observation.

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

First-aid measures after skin contact	:	Wash skin with plenty of water. Remove/Take off immediately all contaminated clothing. In the event of contact with the liquid: treat resulting frostbite as a burn. Do not remove clothing adhering to the skin. In case of severe burns, seek hospital treatment.
First-aid measures after eye contact	:	Do not wear contact lenses. Rinse immediately with plenty of water. Consult an eye specialist.
First-aid measures after ingestion	:	Ingestion during handling is not likely. If necessary seek medical advice.

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

Symptoms/effects	:	Refer to § 11 for more details on effects.
Symptoms/effects after inhalation	:	In case of inhalation of high concentrations : Dizziness, headaches, nausea. Drowsiness. Unconsciousness. anoxia (asphyxia). May cause respiratory irritation.
Symptoms/effects after skin contact	:	Contact with the product may cause cold burns or frostbite.
Symptoms/effects after eye contact	:	Direct contact with the liquefied gas may cause severe and possibly permanent eye injury due to frostbite from rapid liquid evaporation. Eye irritation.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Carbon dioxide. Dry powder. Foam.
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	Extremely flammable gas.
Hazardous decomposition products in case of fire	:	Thermal decomposition generates : Toxic fumes. Carbon oxides (CO, CO2). Hydrocarbons. Aldehydes. Ketones.

5.3. Advice for firefighters

Precautionary measures fire	:	Remove all sources of ignition. Heat may cause pressure rise with explosion of tanks/drums. Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Protection during firefighting	:	Do not attempt to take action without suitable protective equipment. Complete protective clothing. Self-contained breathing apparatus.
Other information	:	Notify fire brigade and environmental authorities. Evacuate unnecessary personnel. Use water spray or fog for cooling exposed containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Evacuate unnecessary personnel. Use special care to avoid static electric charges. Do not smoke. No flames, no sparks. Eliminate all sources of ignition.

6.1.1. For non-emergency personnel

Emergency procedures for non-emergency personnel	:	Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	:	Stop leak without risks if possible. Risk of ignition at distance.
Methods for cleaning up	:	Product evaporates when in contact with the air.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Prevent shock/impact. In use, may form flammable/explosive vapour-air mixture. Provide good ventilation in process area to prevent formation of vapour. Use only outdoors or in a well-ventilated area. Take precautionary measures against static discharge during blending and transfer operations. Explosion-free electrical equipment and lighting with earth.
Hygiene measures	:	Keep away from food and drink. Always wash hands after handling the product. Do not eat, drink or smoke when using this product.

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep away from ignition sources. Proper grounding procedures to avoid static electricity should be followed. Explosive vapour/air mixtures may be formed. Containers (tanks) should be grounded and provided with adequate pressure relief valve. Store in a well-ventilated place. Keep container tightly closed. Protect from heat and direct sunlight.

Special rules on packaging : Keep only in original container.

Packaging materials : Stainless steel.

7.3. Specific end use(s)

Recommended to professional users.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ethylene (74-85-1)		
Ireland	OEL (8 hours ref) (ppm)	200 ppm
USA - ACGIH	Local name	Ethylene
USA - ACGIH	ACGIH TWA (ppm)	200 ppm

8.2. Exposure controls

Appropriate engineering controls : The substance is classified as extremely flammable and therefore the following conditions must be met to ensure safe use: “Risks are controlled by storage and use under conditions which avoid all ignition sources.”
. Safety shower. Eye fountain.

Hand protection : cold-insulating gloves

Eye protection : Do not wear contact lenses. Safety glasses

Skin and body protection : Wear suitable protective clothing. Safety foot-wear

Respiratory protection : Ensure good ventilation of the work station. In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls : Avoid release to the environment.

Other information : Do not eat, drink or smoke during use. Handle in accordance with good industrial hygiene and safety procedures.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Gases under pressure. Pressurized liquefied gas.

Molecular mass : 28 g/mol

Colour : Colourless.

Odour : Odourless. Faint hydrocarbon.

Odour threshold : No data available

pH : No data available

Relative evaporation rate (butylacetate=1) : No data available

Melting point : -169 °C

Freezing point : No data available

Boiling point : -104 °C

Flash point : No data available

Auto-ignition temperature : 490 °C

Decomposition temperature : No data available

Flammability (solid, gas) : Extremely flammable gas

Vapour pressure : 2124 hPa (T= -90°C)

Relative vapour density at 20 °C : No data available

Relative density : No data available

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

Solubility	:	Soluble in aromatic hydrocarbons. Soluble in most organic solvents. Water: 131 mg/l
Log Pow	:	1.13
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	2.7 vol % 36 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable gas.

10.2. Chemical stability

Spontaneous polymerisation.

10.3. Possibility of hazardous reactions

In use may form flammable/explosive vapour-air mixture.

10.4. Conditions to avoid

Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition. Avoid the build-up of electrostatic charge.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Not classified (Based on available data, the classification criteria are not met)
Additional information	:	Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness

ETHYLENE REFRIGERATED LIQUID (74-85-1)	
LC50 inhalation rat	> 65400 mg/m³

Skin corrosion/irritation	:	Not classified (Based on available data, the classification criteria are not met)
Additional information	:	Contact with the product may cause cold burns or frostbite
Serious eye damage/irritation	:	Not classified (Based on available data, the classification criteria are not met)
Additional information	:	May cause eye irritation
Respiratory or skin sensitisation	:	Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	:	Not classified
Aspiration hazard	:	Not classified (Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Do not allow product to spread into the environment.

Ethylene (74-85-1)	
LC50 fish 1	126.012 mg/l QSAR calculation (ECHA)
LC50 other aquatic organisms 1	62.482 mg/l QSAR calculation (ECHA) (daphnid)
EC50 other aquatic organisms 1	40.5 mg/l 72hr EbC50 for Selenastrum capricornutum (biomass) (ECHA)
EC50 other aquatic organisms 2	72.2 mg/l 72hr EC50 for Selenastrum capricornutum (growth rate) (ECHA)
NOEC (acute)	13.9 mg/l 72hr NOEC for Selenastrum capricornutum (growth rate) (ECHA)

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

12.2. Persistence and degradability

ETHYLENE REFRIGERATED LIQUID (74-85-1)	
Persistence and degradability	Inherently biodegradable. Product is expected to undergo degradation in the presence of sunlight.

12.3. Bioaccumulative potential

ETHYLENE REFRIGERATED LIQUID (74-85-1)	
Log Pow	1.13
Bioaccumulative potential	Low bioaccumulation potential.

Ethylene (74-85-1)	
Log Pow	1.13

12.4. Mobility in soil

ETHYLENE REFRIGERATED LIQUID (74-85-1)	
Ecology - soil	because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Do not discharge the product into the environment. Hazardous waste. Dispose of in accordance with relevant local regulations. Use only registered transporters. Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

Additional information : Handle empty containers with care because residual vapours are flammable. Flammable vapours may accumulate in the container.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN Number				
1038	1038	1038	1038	1038
14.2. UN proper shipping name				
ETHYLENE, REFRIGERATED LIQUID	ETHYLENE, REFRIGERATED LIQUID	Ethylene, refrigerated liquid	ETHYLENE, REFRIGERATED LIQUID	ETHYLENE, REFRIGERATED LIQUID
Transport document description				
UN 1038 ETHYLENE, REFRIGERATED LIQUID, 2.1, (B/D)	UN 1038 ETHYLENE, REFRIGERATED LIQUID, 2.1	UN 1038 Ethylene, refrigerated liquid, 2.1	UN 1038 ETHYLENE, REFRIGERATED LIQUID, 2.1	UN 1038 ETHYLENE, REFRIGERATED LIQUID, 2.1
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
14.4. Packing Group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine Pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : 3F

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P203

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

Mixed packing provisions (ADR)	:	MP9
Portable tank and bulk container instructions (ADR)	:	T75
Portable tank and bulk container special provisions (ADR)	:	TP5
Tank code (ADR)	:	RxBN
Tank special provisions (ADR)	:	TU18, TA4, TT9
Vehicle for tank carriage	:	FL
Transport category (ADR)	:	2
Special provisions for carriage - Packages (ADR)	:	V5
Special provisions for carriage - Loading, unloading and handling (ADR)	:	CV9, CV11, CV36
Special provisions for carriage - Operation (ADR)	:	S2, S17
Hazard identification number (Kemler No.)	:	223
Orange plates	:	
Tunnel restriction code (ADR)	:	B/D
EAC code	:	2YE

- Transport by sea (IMDG)

Limited quantities (IMDG)	:	0
Excepted quantities (IMDG)	:	E0
Packing instructions (IMDG)	:	P203
Tank instructions (IMDG)	:	T75
Tank special provisions (IMDG)	:	TP5
EmS-No. (Fire)	:	F-D
EmS-No. (Spillage)	:	S-U
Stowage category (IMDG)	:	D

- Air transport (IATA)

PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	Forbidden
PCA max net quantity (IATA)	:	Forbidden
CAO packing instructions (IATA)	:	Forbidden
CAO max net quantity (IATA)	:	Forbidden
ERG code (IATA)	:	10A

- Inland waterway transport

Classification code (ADN)	:	3F
Limited quantities (ADN)	:	0
Excepted quantities (ADN)	:	E0
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	1

- Rail transport

Classification code (RID)	:	3F
Limited quantities (RID)	:	0
Excepted quantities (RID)	:	E0
Packing instructions (RID)	:	P203
Mixed packing provisions (RID)	:	MP9
Portable tank and bulk container instructions (RID)	:	T75
Portable tank and bulk container special provisions (RID)	:	TP5
Tank codes for RID tanks (RID)	:	RxBN
Special provisions for RID tanks (RID)	:	TU18, TU38, TE22, TA4, TT9, TM6

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168

Transport category (RID)	:	2
Special provisions for carriage – Packages (RID)	:	W5
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW9, CW11, CW30, CW36
Colis express (express parcels) (RID)	:	CE2
Hazard identification number (RID)	:	223

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

ETHYLENE REFRIGERATED LIQUID is not on the REACH Candidate List

ETHYLENE REFRIGERATED LIQUID is not on the REACH Annex XIV List

15.1.2. National regulations

Complies the United States TSCA (Toxic Substances Control Act) inventory
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Canadian DSL (Domestic Substances List)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS)
Listed on the China Inventory of Existing Chemical Substances (IECSC)
Listed on NZIoC (New Zealand Inventory of Chemicals)

15.2. Chemical safety assessment

The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures

SECTION 16: Other information

Training advice	:	Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.
Other information	:	Use good personal hygiene practices.

Full text of H- and EUH-statements:

Compressed gas	Gases under pressure : Compressed gas
Flam. Gas 1	Flammable gases, Category 1
Press. Gas	Gases under pressure
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

SDS EU (REACH Annex II)

This information applies to the PRODUCT AS SUCH and conforming to specifications of TOTAL.
In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear.
The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. However the revision of some data is in progress.
Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes.
The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.
It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.
It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product. (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

塑料专家 www.ponci.com.cn/wxb/ +13538586433 +18816996168