

Chloroethane

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

1.1. Product identifier

Name of product	Chloroethane
Name of substance	Art-Nr(n): 1200 chloroethane
Index No	602-009-00-0
EC No	200-830-5
REACH registration number	01-2119487479-17
CAS No	75-00-3

Manufacturer / Distributor:

Ehsan International Gases

40/9, Aurangabad, Nazimabad
#3, Karachi 74600, Pakistan.
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Sector of uses [SU]

SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU8
- Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals

Product categories [PC]

PC13 - Kraftstoffe
PC19 - Intermediate
PC20 - Products such as ph-regulators, flocculants, precipitants, neutralisation agents

Process categories [PROC]

PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC11 - Non industrial spraying

Environmental release categories [ERC]

ERC1 - Manufacture of substances
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Chloroethane

ERC2 - Formulation of preparations (mixtures)
 ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
 ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
 ERC6b - Industrial use of reactive processing aids

Uses advised against

! Remark

Do not use for inflating balloons.

Recommended intended purpose(s)

Basic substance.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to 67/548/EEC or 1999/45/EC

F+; R12

Carc. Cat. 3; R40

R52/53 R-

phrases

12 Extremely flammable.
 40 Limited evidence of a carcinogenic effect.
 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

Hazard classes and Hazard	Hazard Statements	Classification procedure categories
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Flam. Gas 1	H220
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Liquef. Gas	H280
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Carc. 2	H351
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Aquatic Chronic 3	H412
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Hazard statements for physical hazards

H220	Extremely flammable gas.
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H280	Contains gas under pressure; may explode if heated.
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Hazard statements for health hazards

H351	Suspected of causing cancer.
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Hazard statements for environmental hazards

H412	Harmful to aquatic life with long lasting effects.
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! 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



GHS04



GHS08

Chloroethane

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

H351 Suspected of causing cancer.

Hazard statements for environmental hazards

H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P308 + P313 IF exposed or concerned: Get medical advice/attention.

Storage

P403 Store in a well-ventilated place.

P405 Store locked up.

Hazardous ingredients for labeling

chloroethane

2.3. Other hazards

! Adverse physicochemical effects

In the case of insufficient ventilation and/or through the formation of a explosive/highly flammable mixture is possible.

! Adverse human health effects and symptoms

Contact with liquid may cause cold burns/frostbite.

Asphyxiant in high concentrations.

! Information pertaining to special dangers for human and environment

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 3: Composition/ information on ingredients

3.1. Substances

CAS No 75-00-3

chloroethane

EC No 200-830-5

Index No 602-009-00-0

REACH registration number 01-2119487479-17

3.2. Mixtures

not applicable

Chloroethane

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. 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:

Unconsciousness
Cardiac arrhythmia (disordered cardiac rhythm).
Shortness of breath
Delirious state
vomiting
Depression of central nervous system
Cardiopulmonary arrest.
Headache
Nausea
Confusion
Dizziness
Contact with liquid may cause cold burns/frostbite.

! Physician's information / possible dangers

Risk of cardiac rhythm disturbances
Long-term inhaling of separation products may cause pulmonary oedema.
Risk of reduced reactions (sedative)

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

! Treatment (Advice to doctor)

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Chloroethane

Dry powder
Carbon dioxide

! Unsuitable extinguishing media

Full water jet

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)

Hydrogen chloride (HCl)

Phosgene

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See chapter 8.

Remove persons to safety.

Evacuate area.

Keep away sources of ignition.

6.2. Environmental precautions

If possible, stop flow of product.

Eliminate ignition sources.

Do not discharge into the drains/surface waters/groundwater.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Ensure adequate air ventilation.

Allow to vaporise.

Additional Information

No water on the leaks.

6.4. Reference to other sections

Informations for safe handling see chapter 7.

Informations for personal protective equipment see chapter 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.

Take measures against electrostatically charging.

Chloroethane

Barrels and installations thoroughly earthing (grounding).
Use antistatic tools.
Treatment only in suitable rooms and systems.
Provide good room ventilation even at ground level (vapours are heavier than air).
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.

! General protective measures Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink and smoke.

! 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.
Do not use zinc containers.
Use transportable pressure equipment.
Suitable materials: Normalised steel and carbon steel, tempered steel, stainless steel.
Valve: Suitable materials: Brass, copper alloys, carbon steels, stainless steel. Unsuitable materials: Aluminium alloys.

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 liquids or oxidizing solids.

! Further information on storage conditions

Ensure valve protection device is correctly fitted.
Store closed container at cool and aired place.
Prevent cylinders from falling over.
Protect of heat.
Storage temperature may not exceed 50°C (=122°F).

7.3. Specific end use(s)

! Recommendation(s) for intended use

No further recommendations.

Chloroethane

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

! Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
75-00-3	Chloroethane	WEL-TWA, 8 hours	135	50	EH40, UK

Indicative occupational exposure limit values (91/322/EEC, 2000/39/EC, 2006/15/EC or 2009/161/EU)

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
75-00-3	chloroethane	8 hours	268	100	

! Additional advice

DNEL (workers, inhalation, long-term, systemic effects): 268 mg/m³ (100 ppm). DNEL (workers, dermal, long-term, systemic effects): 38,3 mg/kg bw / day.

8.2. Exposure controls

! Respiratory protection

Keep self contained breathing apparatus readily available for emergency use.

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

Short-term: filter apparatus, filter AX, otherwise environment-independent breathing apparatus.

! Hand protection chemical-

resistant gloves

Leather gloves

Glove material specification [make/type, thickness, permeation time/life]: IIR, >= 0,5 mm, > 8 min

Eye protection

safety goggles with side protection

Safety goggles, in case of increased risk add protective face shield

! Skin protection

Safety shoes with steel toe.

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

Limitation and surveillance of the environment

PNEC (freshwater): 0,058 mg/l

PNEC (sea water): 0,0058 mg/l

PNEC (freshwater sediment): 0,3098 mg/kg

PNEC (marine sediment): 0,0310 mg/kg PNEC

(water): 0,58 mg/l (intermittent emission). See chapter 7.

Additional advice on system design

Transfer and handle only in enclosed systems.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Colour	Odour
Gaseous / liquefied under pressure.	colourless	pungent, ethereal

Chloroethane

! Odour threshold

10 - 12 mg/m³

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	not applicable				
boiling point	12,3 °C		1013 hPa		
melting point	-138,3 °C				
Flash point	-43 °C			DIN 51755	
Flammable solid	not applicable				
Flammability (gas)					Flammable.
Ignition temperature	510 °C			DIN 51794	
Autoignition	519 °C				
Lower explosion limit	3,6 Vol-%				
Upper explosion limit	14,8 Vol-%				
Vapour pressure	1342 hPa	20 °C			
Relative density	0,92 g/cm ³	1 °C			information concerns to liquid phase
Bulk density	not applicable				
Vapour density	2,3				air = 1
Solubility in water	5,8 g/l	20 °C			Reacts with water
Solubility/other					soluble in organic solvent
Partition coefficient (log₁₀ p_{OW})					
Viscosity dynamic	0,27 mPa*s	20 °C			

Chloroethane

SECTION 10: Stability and reactivity

10.1. Reactivity

See section "Possibility of hazardous reactions".

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reactions with alkali metals.

10.4. Conditions to avoid

Formation of explosive gas/air mixtures.

Heat sources / heat - risk of bursting.

10.5. Incompatible materials

! Materials to avoid

Alkali metals

Calcium

Magnesium.

Oxidising agent

Zinc.

Water / moisture.

Aluminium / Aluminium alloys.

10.6. Hazardous decomposition products

Hydrogen chloride (HCl)

Phosgene

Thermal decomposition

Remark No decomposition below 400°C.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	not applicable			
LD50 acute dermal	not applicable Value/Validation	Species	Method	Remark
LC50 acute inhalation	> 19000 ppm (4 h)	rat	OECD 403	

Chloroethane

Irritability skin	not applicable
Irritability eye	not applicable
Skin sensitization	not applicable
Sensitization respiratory system	not applicable

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Subchronic Toxicity	LOEC 50310 mg/m3 (90 d) Inhalation	Rat (male / female)	OECD 413	No effects of toxicological significance.
Mutagenicity	66148 mg/m3	Mouse	OECD 474	No experimental information on genotoxicity in vivo available.
Reproduction-Toxicity	NOAEC 39577 mg/m3 Inhalation	Rat	OECD 451	No indications of toxic effects were observed in reproduction studies in animals.
Carcinogenicity	39577 mg/m3 (17520 h)	Rat	OECD 451	Indications of possible carcinogenic effects in animal studies are available. Inhalation

! Specific target organ toxicity (single exposure)

no

! Specific target organ toxicity (repeated exposure)

no

! Aspiration hazard

not applicable

! Toxicity test (Additional information)

Experimental indication of genotoxicity in vitro (Ames-test positive).

Experiences made from practice

May cause frostbite.

Irritates eyes and skin.

Gases have a suffocating effect.

Inhalation causes narcotic effect/intoxication.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

Chloroethane

12.2. Persistence and degradability

	Value	Species	Method	Validation
Fish	LC50 117 mg/l (96 h)	freshwater fish	QSAR	
Daphnia	EC50 58 mg/l (48 h)	Daphnia magna	EU Method C.2	
Algae	EC50 118 mg/l (72 h)	Scenedesmus subspicatus	EU Method C.3	
Bacteria	EC10 > 140 mg/l (17 h)	Pseudomonas putida	DIN 38412 T.8, cell reproduction	
Biological degradability	53 - 91 % (28 d)	At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.		Slightly biodegradable
Biological Physico-chemical degradability	not determined			

eliminability

12.3. Bioaccumulative potential

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

12.4. Mobility in soil

high mobility

Adsorption in the 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

! General regulation

ODP: 0

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 dangerous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 91/689/EEC 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

Land and inland navigation transport ADR/RID

Chloroethane

UN 1037 ETHYL CHLORIDE, 2.1, (B/D), Classification code: 2F

Marine transport IMDG

UN 1037 ETHYL CHLORIDE, 2.1

Air transport ICAO/IATA-DGR

UN 1037 Ethyl chloride, 2.1

Special precautions for user

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

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

not applicable

No transport as bulk according IBC - Code.

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 28 - 30.

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

Directive 96/82/EC on the control of major-accident hazards involving dangerous substances.

VOC standard

VOC content >= -99,8 % 20 °C 1342 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.

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.

Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 12 Extremely flammable.

R 40 Limited evidence of a carcinogenic effect.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H351 Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

H412 Harmful to aquatic life with long lasting effects.