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

1.1 Product identifier

Trade name/designation	Ethylamine
Art-Nr(n).	1110
Substance name	ethylamine
Index No	612-002-00-4
EC No	200-834-7
REACH No.	01-2119485800-36
CAS No	75-04-7

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

Use of the substance/mixture
Use only as an intermediate under strictly controlled conditions.

1.3 Details of the supplier of the safety data sheet

Supplier
GHC Gerling, Holz & Co. Handels GmbH
Ruhrstraße 113
D-22761 Hamburg
Telephone +49 40 853 123 0
E-mail hamburg@ghc.de
Website www.ghc.com

Department responsible for information:
GHC Gerling, Holz & Co. Handels GmbH
Telephone +49 40 853 123 0

E-mail (competent person):
msds@ghc.de

1.4 Emergency telephone number

EN: Poison Information Center Mainz +49 6131 19240

* SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]	Classification procedure
Flam. Gas 1A, H220	
Press. Gas (Liq.), H280	
Acute Tox. 4, H332	
Eye Irrit. 2, H319	
STOT SE 3, H335	

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

Hazard statements for health hazards
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

* 2.2 Label elements

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

Hazard pictograms

GHS02

GHS07

Signal word
Danger

Hazard statements
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

* **Precautionary statements**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe gas/vapours.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P315 Get immediate medical advice/attention.
P403 Store in a well-ventilated place.

Supplemental hazard information
Please return container with residual pressure.

2.3 Other hazards

Adverse human health effects and symptoms
Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
The inhalation of gas / vapour in high concentrations may cause cardiac arrhythmia.

Other adverse effects
The substance/mixture does not contain components identified as having endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1% or more.

Results of PBT and vPvB assessment
The substance/mixture does not contain components meeting the PBT/vPvB criteria of the Reach Regulation, Annex XIII, at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Substance name	ethylamine
Index No	612-002-00-4
EC No	200-834-7
REACH No.	01-2119485800-36
CAS No	75-04-7
ATE	ATE(): 4320 ppm

Additional information
Content: >= 99,5 %

3.2 Mixtures

not applicable

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
In the event of persistent symptoms obtain medical treatment.
First aider: Pay attention to self-protection!

Following inhalation
Remove casualty to fresh air and keep warm and at rest.
In case of breathing difficulties give oxygen.
In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Obtain medical assistance.
In the event of pulmonary irritation treat initially with corticoid spray, e.g. Ventolair- or Pulmicort- metered-dose aerosol (Ventolair and Pulmicort are registrated trademarks).

Following skin contact
In case of skin contact rinse with warm water.
IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
Call a physician immediately.

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

Following ingestion
Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms
Cough
Shortness of breath.
Dyspnoea

Effects
Pulmonary oedema

4.3 Indication of any immediate medical attention and special treatment needed

Notes for the doctor
Treat symptomatically.
Pulmonary oedema prophylaxis.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray jet
Extinguishing powder
Foam

Unsuitable extinguishing media
Full water jet
Carbon dioxide (CO_2)

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products
In case of fire formation of dangerous gases possible.
Nitrogen oxides (NOx)
Carbon monoxide
Carbon dioxide (CO_2)

5.3 Advice for firefighters

Special protective equipment for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

If possible, shut off gas valves and move containers to a safe location.
Use water spray jet to protect personnel and to cool endangered containers.
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.
Dispose of fire residues and contaminated extinguishing water in accordance with local, official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Use personal protection equipment.
Leave the danger area.
Keep people away and stay on the upwind side.

For emergency responders
Personal protection by wearing close-fitting protective clothing and breathing apparatus.
Pay attention to extension of gas especially at ground (heavier than air) and in direction of the wind.
Eliminate all ignition sources if safe to do so.
Remove persons to safety.

6.2 Environmental precautions

If possible, stop flow of product.
Do not allow to enter into soil/subsoil.
Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up

For containment
If necessary, secure leaky pressure receptacles using a salvage container.
Prevent the liquid from spreading over a wide area (set up barriers, cover sewage systems).
Limit expansion of the gas (water spray jet).

For cleaning up
Leave to vapourize.
Provide adequate ventilation.

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

Protective measures
Use only in well-ventilated areas.
Transfer and handle product only in closed systems.
Usual measures for fire prevention.
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.
Prevent cylinders from falling over.
Take precautionary measures against static discharges. Ground barrels and installations. Use only antistatically equipped (spark-free) tools.
Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
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.

Advices on general occupational hygiene
When using do not eat, drink, smoke, sniff.
Wash hands before breaks and after work.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
All regulations and local requirements for the storage of containers have to be respected.
Keep container tightly closed and in a well-ventilated place.
Containers' temperature should not be increased above 50 °C.
Prevent cylinders from falling over.
Only use containers specifically approved for the substance/product.
Information on suitable materials for receptacles and valves see ISO 11114.

Materials to avoid
Do not store together with explosives.
Do not store together with flammable liquids.
Do not store together with flammable solids.
Do not store together with pyrophoric and self-heating substances.
Do not store together with oxidizing liquids or oxidizing solids.
Do not store together with toxic liquids or toxic solids.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with food or feed.

* 7.3 Specific end use(s)

* **Recommendation**
Use only as an intermediate under strictly controlled conditions.
An exposure scenario is not required.

* SECTION 8: Exposure controls/personal protection

* 8.1 Control parameters

* **Occupational exposure limit values**

CAS No	EC No	Substance name	occupational exposure limit value
75-04-7	200-834-7	Ethylamine	5 [ml/m³(ppm)] 9,4 [mg/m³] (IE)

DNEL worker

CAS No	Substance name	DNEL value	DNEL type	Remark
75-04-7	ethylamine	9.4 mg/m³	long-term inhalative (systemic)	
75-04-7	ethylamine	9.4 mg/m³	long-term inhalative (local)	
75-04-7	ethylamine	19 mg/m³	acute inhalative (local)	

PNEC

CAS No	Substance name	PNEC Value	PNEC type	Remark
75-04-7	ethylamine	0.003 mg/L	aquatic, marine water	Assessment factor 500
75-04-7	ethylamine	0.016 mg/L	aquatic, intermittent release	
75-04-7	ethylamine	0.002 mg/kg dw	sediment, marine water	
75-04-7	ethylamine	0.026 mg/kg dw	soil	
75-04-7	ethylamine	0.032 mg/L	aquatic, freshwater	Assessment factor 50
75-04-7	ethylamine	0.24 mg/kg dw	sediment, freshwater	
75-04-7	ethylamine	20.3 mg/L	sewage treatment plant (STP)	Assessment factor 1

8.2 Exposure controls

Appropriate engineering controls

Technical measures to prevent exposure
Transfer and handle only in enclosed systems.
Use only as an intermediate under strictly controlled conditions.

Personal protection equipment

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

Hand protection
Safety gloves according to EN 374:
Glove material specification [make/type, thickness, permeation time/life]: IIR, >= 0,7 mm, > 480 min

Body protection:
Safety shoes with steel toecap.
Body covering work clothing or chemical resistant suit at increased risk.

Respiratory protection
Keep self contained breathing apparatus readily available for emergency use.
Respiratory protection necessary at:
high concentrations
Respiratory protection complying with EN 137.
Short term: filter apparatus, filter K
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.

Thermal hazards
Use cold-resistant protective equipment.

Environmental exposure controls

Remark
Prevent release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state
Gaseous / liquefied under pressure.

Colour
colourless

Odour
like:
Ammonia

Safety relevant basis data

	Value	Method	Source, Remark
Odour threshold:			not determined
Melting point/freezing point			not applicable
Boiling point or initial boiling point and boiling range	16.6 °C		
flammability			Extremely flammable gas (H220).
Lower and upper explosion limit	Upper explosion limit 14 Vol-%		
Lower and upper explosion limit	Lower explosion limit 3.5 Vol-%		
Flash point			not applicable
Auto-ignition temperature	385 °C		

	Value	Method	Source, Remark
Decomposition temperature			No decomposition if used as directed.
pH			not applicable
Viscosity			not applicable
Solubility(ies)			Miscible with: Water
Partition coefficient n-octanol/water (log value)	-0.13		
Vapour pressure	1144 hPa (20°C)		
Density and/or relative density			not applicable
Relative vapour density	1.61		air = 1
particle characteristics			not applicable

9.2 Other information

Information with regard to physical hazard classes

Gases under pressure

Safety characteristics

	Value	Method, Result	Source, Remark
Critical temperature	183.4 °C		

Other information
Vapours are heavier than air.

SECTION 10: Stability and reactivity

10.1 Reactivity

May form an explosive mixture with air.

10.2 Chemical stability

The substance is chemically stable under recommended conditions of storage, use and temperature.

10.3 Possibility of hazardous reactions

Reactions with numerous chemical compounds.
May react violently with oxidants.
Reactions with alcohols.
Reactions with acids.

10.4 Conditions to avoid

Heat sources / heat - risk of bursting.
Ignition sources, open flames, glowing metal surfaces, etc.

10.5 Incompatible materials

Hydrogen bromide (HBr)
Chlorine
Sulphur dioxide (SO_2)
Hydrogen sulphide (H_2S)
Nitrogen oxides (NOx)

10.6 Hazardous decomposition products

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

* SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

*** Acute toxicity**

*** Animal data**

	Effective dose	Method,Evaluation	Source, Remark
Acute oral toxicity	LD50: 400 mg/kg Species Rat		Aqueous solution.
Acute dermal toxicity	LD50: 265 mg/kg Species Rabbit		Aqueous solution.
Acute inhalation toxicity	CAS No75-04-7 ethylamine LC50: 4320 ppm Species Rat Exposure time 4 h	OECD 403	

Assessment/classification
Harmful if inhaled.

*** Skin corrosion/irritation**

Animal data

Result / Evaluation	Method	Source, Remark
strongly corrosive. Species Rabbit	OECD 404	Aqueous solution.

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

Serious eye damage/irritation

Animal data

Result / Evaluation	Method	Source, Remark
strongly irritant. Species Rabbit		

Assessment/classification
Causes serious eye irritation.

Sensitisation to the respiratory tract

Assessment/classification
No data available

Skin sensitisation

Other information
Study scientifically not necessary.

Germ cell mutagenicity

	Value	Method	Result / Evaluation	Remark
In vitro mutagenicity/genotoxicity			negative	
In vivo mutagenicity/genotoxicity	Species Mouse		negative	

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

Carcinogenicity

Assessment/classification
No data available

Reproductive toxicity

Assessment/classification
No data available

STOT-single exposure

STOT SE 1 and 2

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

STOT SE 3

Irritation to respiratory tract

Assessment/classification
May cause respiratory irritation.

STOT-repeated exposure

Animal data

	Effective dose	Method	Specific effects:	Organs affected:	Source, Remark
Inhalative specific target organ toxicity (repeated exposure)	NOAEL(C): 100 ppm Species Rat (male / female) Exposure duration 120 d				

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

Aspiration hazard

Assessment/classification
Study technically not feasible.

11.2 Information on other hazards

Additional information
The inhalation of gas / vapour in high concentrations may cause cardiac arrhythmia.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity

	Effective dose	Method,Evaluation	Source, Remark
Acute (short-term) fish toxicity	LC50: 168 mg/L Species Leuciscus idus (golden orfe) Test duration 48 h		
Chronic (long-term) fish toxicity	not determined		
Acute (short-term) toxicity to crustacea	LC50 7.9 mg/L Species Ceriodaphnia spec Test duration 48 h		
Chronic (long-term) toxicity to aquatic invertebrate	NOEC 3.2 mg/L Species Ceriodaphnia spec Test duration 7 d		
Acute (short-term) toxicity to algae and cyanobacteria	EC50 1.6 mg/L Species Scenedesmus quadricauda Test duration 8 d		
Chronic (long-term) toxicity to aquatic algae and cyanobacteria	not determined		
Toxicity to other aquatic plants/organisms	not determined		

	Effective dose	Method,Evaluation	Source, Remark
Toxicity to microorganisms	NOEC 20.3 mg/L Species Pseudomonas putida Test duration 16 h	DIN 38412 / part 8	

12.2 Persistence and degradability

	Value	Method	Source, Remark
Biodegradation	Degradation rate 90 % Test duration 14 d	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	

Assessment/classification
Readily biodegradable (according to OECD criteria).

12.3 Bioaccumulative potential

Assessment/classification
Based on the n-octanol/water partition coefficients of the individual components of the mixture, accumulation in organisms is not expected.

12.4 Mobility in soil

Assessment/classification
Adsorption in soil is not likely.

12.5 Results of PBT and vPvB assessment

The substance/mixture does not contain components meeting the PBT/vPvB criteria of the Reach Regulation, Annex XIII, at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste codes/waste designations according to EWC/AVV

Waste code product	Waste name
160504 *	gases in pressure containers (including halons) containing hazardous substances

Appropriate disposal / Product
Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Prevent release to the environment. No disposal via the sewage.

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

SECTION 14: Transport information

	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN number or ID number	UN 1036	UN 1036	UN 1036
14.2 UN proper shipping name	ETHYLAMINE	ETHYLAMINE	Ethylamine
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 Maritime transport in bulk according to IMO instruments

No carriage in bulk.

Land transport (ADR/RID)

UN number or ID number	UN 1036
UN proper shipping name	ETHYLAMINE
Transport hazard class(es)	2.1
Hazard label(s)	2.1
Classification code	2F
Packing group	-
Environmental hazards	No
Limited quantity (LQ)	0
Special provisions	662
Tunnel restriction code	B/D

Sea transport (IMDG)

UN number or ID number	UN 1036
UN proper shipping name	ETHYLAMINE
Transport hazard class(es)	2.1
Packing group	-
Environmental hazards	No
Limited quantity (LQ)	0
Marine pollutant	No
EmS	F-D, S-U

Air transport (ICAO-TI / IATA-DGR)

UN number or ID number	UN 1036
UN proper shipping name	Ethylamine
Transport hazard class(es)	2.1
Packing group	-
Environmental hazards	No

SECTION 15: Regulatory information

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

EU legislation

Restrictions of occupation
Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Other regulations (EU)

To follow:
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.
National and local regulations concerning chemicals shall be observed.

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive] VOC
VOC-value 99.5 %

15.2 Chemical Safety Assessment

National regulations

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

SECTION 16: Other information

Abbreviations and acronyms
Flam. Gas 1A: Flammable gas, Category 1A
Press. Gas (Comp.): Compressed gas (CG)
Press. Gas (Liq.): Liquefied gas (LG)
Eye Irrit. 2: Eye irritation, Category 2
STOT SE 3, H335: Specific target organ toxicity (single exposure), Category 3
Acute Tox. 4, H332: Acute Toxicity (inhalation), Category 4

Key literature references and sources for data
Information from our suppliers and data from the "GESTIS Substances Database" and the "Registered Substances" database of the European Chemicals Agency (ECHA) were used to create this safety data sheet.

Additional information
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.

Relevant H- and EUH-phrases (Number and full text)

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

Indication of changes
* Data changed compared with the previous version