# Trimethylamine

 Print date
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 Version
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 replaces version of
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# \* SECTION 1: Identification of the substance/mixture and of the company/undertaking

# 1.1 Product identifier

\*

Trade name/designation	Trimethylamine
Art-Nr(n).	1140, 70114
Substance name	tri-methylamine
Index No	612-001-00-9
EC No	200-875-0
REACH No.	01-2119492296-28
CAS No	75-50-3

# \* 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	
Skin Irrit. 2, H315	
Eye Dam. 1, H318	
STOT SE 3, H335	
Hazard statements for physical h H220 Extremely flammable gas. H280 Contains gas under pressure;	
Hazard statements for health haz H315 Causes skin irritation. H318 Causes serious eye damage. H332 Harmful if inhaled. H335 May cause respiratory irritatio	

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# 2.2 Label elements

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

Hazard pictograms



Signal word Danger

## **Hazard statements**

H220 Extremely flammable gas. H280 Contains gas under pressure; may explode if heated. H315 Causes skin irritation. H318 Causes serious eye damage. 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. P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P403 Store in a well-ventilated place.

#### Supplemental hazard information

Please return container with residual pressure.

#### 2.3 Other hazards

#### Adverse physicochemical effects

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

#### Adverse human health effects and symptoms

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. Contact with liquid may cause cold burns/frostbite.

#### 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	tri-methylamine
Index No	612-001-00-9
EC No	200-875-0
REACH No.	01-2119492296-28
CAS No	75-50-3
Specific concentration limit (SCL)	Skin Irrit. 2;H315: C>=5% Eye Dam. 1;H318: C>=5% Eye Irrit. 2;H319: 0.5%<=C<5% STOT SE 3;H335: C>=5%

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# ATE

ATE(inhalation gas): 3500 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**

Remove contaminated, saturated clothing immediately. Call a physician immediately. First aider: Pay attention to self-protection!

#### **Following inhalation**

Remove casualty to fresh air and keep warm and at rest. 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). In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Obtain medical assistance.

Following skin contact In case of frostbite, wash with plenty of water; do not remove clothing.

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.

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

Dysphoea Púlmonary oedema Depression of central nervous system Tears

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

#### Notes for the doctor Treat symptomatically.

Pulmonary oedema prophylaxis. Symptoms may be delayed.

# **SECTION 5: Firefighting measures**

# 5.1 Extinguishing media

Suitable extinguishing media Extinguishing powder Water spray jet alcohol resistant foam

Unsuitable extinguishing media Full water jet Carbon dioxide (CO2)

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# 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 (CO2)

#### 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 sources of ignition until all spilled liquid has evaporated (floor is free of frost). 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**

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#### 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 harmabic 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

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

# \* SECTION 8: Exposure controls/personal protection

# 8.1 Control parameters

# Occupational exposure limit values

CAS No	EC No	Substance name	occupational exposure limit value
75-50-3	200-875-0	Trimethylamine	5 [ml/m³(ppm)] (IE)

# **DNEL** worker

CAS No	Substance name	DNEL value	DNEL type	Remark
75-50-3	tri-methylamine	3.94 mg/m <sup>3</sup>	long-term inhalative (systemic)	Assessment factor 75, repeated dose toxicity.
75-50-3	tri-methylamine	4.9 mg/m <sup>3</sup>	long-term inhalative (local)	Assessment factor 1
75-50-3	tri-methylamine	9.8 mg/m³	acute inhalative (local)	Assessment factor 1, Extrapolation

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# PNEC

FNEC				
CAS No	Substance name	PNEC Value	PNEC type	Remark
75-50-3	tri-methylamine	0.008 mg/L	aquatic, marine water	Assessment factor 500, assessment factor.
75-50-3	tri-methylamine	0.02 mg/kg	soil	
75-50-3	tri-methylamine	0.033 mg/kg dw	sediment, marine water	
75-50-3	tri-methylamine	0.078 mg/L	aquatic, freshwater	Assessment factor 50, assessment factor.
75-50-3	tri-methylamine	0.28 mg/L	aquatic, intermittent release	
75-50-3	tri-methylamine	0.328 mg/kg dw	sediment, freshwater	
75-50-3	tri-methylamine	149.82 mg/L	sewage treatment plant (STP)	Assessment factor 1, assessment factor.

# 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]: PVC, >= 0,5 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 Suitable respiratory protection apparatus: 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

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	Value	Method	Source, Remark
Odour threshold:			not determined
Melting point/freezing point			not applicable
Boiling point or initial boiling point and boiling range	2.9 °C pressure 1013 hPa		
flammability			inflammable
Lower and upper explosion limit	Upper explosion limit 11.6 Vol-%		
Lower and upper explosion limit	Lower explosion limit 2 Vol-%		
Flash point			not applicable
Auto-ignition temperature	190 °C		
Decomposition temperature	≥ 400 °C		
рН			not applicable
Viscosity			not applicable
Solubility(ies)	Water solubility		miscible
Partition coefficient n-octanol/water (log value)	0.16		
Vapour pressure	1887 hPa (20°C)		
Density and/or relative density			not applicable
Relative vapour density	2.11		air = 1
particle characteristics			not applicable
her information			
mation with regard to physical haz	ard classes		
es under pressure			
Safety characteristics			
	Value	Method, Result	Source, Remark
Critical temperature	160.2 °C		

# **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

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

# 10.4 Conditions to avoid

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

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# 10.5 Incompatible materials

Hydrogen bromide (HBr) Chlorine Hydrochloric gas Sulphur dioxide (SO2)

#### 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

Annai data			
	Effective dose	Method,Evaluation	Source, Remark
Acute oral toxicity	LD50: 766 mg/kg Species Rat	OECD 401	Aqueous solution.
Acute dermal toxicity	LD50: > 5000 mg/kg Species Rat	OECD 402	Aqueous solution.
Acute inhalation toxicity	CAS No75-50-3 tri- methylamine Acute inhalation toxicity (gas) LC50: 3500 ppm Species Rat Exposure time 4 h		
Assessment/classification Harmful if inhaled.			
in corrosion/irritation			
Animal data			
Result / Evaluation	Method	Source, Remark	
Species Rabbit	BASF-Test	Aqueous solution.	
Assessment/classification Causes skin irritation.			
rious eye damage/irritation			
Animal data			
Result / Evaluation	Method	Source, Remark	
Species Rabbit	Draize-method	Aqueous solution.	
Assessment/classification Causes serious eye damage.			
ensitisation to the respiratory tract			
Other information No data available			
in sensitisation			
Assessment/classification Study scientifically not necessary.			

Study scientifically not necessary.

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### Germ cell mutagenicity

	Value	Method	Result / Evaluation	Remark
In vitro mutagenicity/gen icity	Gene mutation otox	OECD 471	negative	
Assessment/cla Based on availab	<b>ssification</b> le data, the classificatio	n criteria are not	met.	
rcinogenicity				
Other information				
productive toxicity				
Animal data				
	Value	Method	Result / Evaluation	Remark
Reproductive tox	icity oral NOEL 200 mg/kg	OECD 422		Aqueous solution.

# Assessment/classification

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

#### STOT-single exposure

# STOT SE 3

# Irritation to respiratory tract

Assessment/classification May cause respiratory irritation.

# **STOT-repeated exposure**

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

No data available

# \* SECTION 12: Ecological information

#### 12.1 Toxicity

# Aquatic toxicity

	Effective dose	Method,Evaluation	Source, Remark
Acute (short-term) fish toxicity	LC50: > 100 mg/L Species Leuciscus idus (golden orfe) Test duration 96 h	OECD 203	Aqueous solution.
Chronic (long-term) fish toxicity	not determined		
Acute (short-term) toxicity to crustacea	EC50 28 mg/L Species Daphnia magna (Big water flea) Test duration 48 h	OECD 202	Aqueous solution.
Chronic (long-term) toxicity to aquatic invertebrate	not determined		
Acute (short-term) toxicity to algae and cyanobacteria	EC50 > 100 mg/L Species Pseudokirchneriella subcapitata Test duration 72 h	OECD 201	Aqueous solution.

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	Effective dose	Method, Evaluation	Source, Remark
Chronic (long-term) toxicity to aquatic algae and cyanobacteria	not determined		
Toxicity to other aquatic plants/organisms	not determined		
Toxicity to microorganisms	EC50 208 mg/L Species Pseudomonas putida Test duration 17 h	DIN EN ISO 11348-2	Aqueous solution.

#### 12.2 Persistence and degradability

	Value	Method	Source, Remark
Biodegradation	Degradation rate 92 %	OECD 301C/ ISO 9408/	CAS No75-50-3 tri-
	Test duration 14 d	EEC 92/69/V, C.4-F	methylamine

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

#### 12.3 Bioaccumulative potential

Assessment/classification Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

# 12.4 Mobility in soil

	Value	Distribution	Transport type	Method	Remark
Half-life time in soil	6			KOC value	

#### 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 1083	UN 1083	UN 1083
14.2 UN proper shipping name	TRIMETHYLAMINE, ANHYDROUS (tri- methylamine)	TRIMETHYLAMINE, ANHYDROUS (tri- methylamine)	Trimethylamine, anhydrous (tri- methylamine)
14.3 Transport hazard class(es)	2.1	2.1	2.1
14.4 Packing group	-	-	-

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	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA- DGR)
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 1083
UN proper shipping name	TRIMETHYLAMINE, ANHYDROUS (tri-methylamine)
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 1083
UN proper shipping name	TRIMETHYLAMINE, ANHYDROUS (tri-methylamine)
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 1083
UN proper shipping name	Trimethylamine, anhydrous (tri-methylamine)
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).

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# 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 $\geq 99.5~\%$

#### **15.2 Chemical Safety Assessment**

#### **National regulations**

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

# **SECTION 16: Other information**

#### 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.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H412 Harmful to aquatic life with long lasting effects.

#### Indication of changes

\* Data changed compared with the previous version