

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

Printed 27.05.2019
Revision 27.05.2019 (GB) Version 13.0

Monomethylamine
1130, 70113



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

1.1. Product identifier

Name of product	Monomethylamine Art-Nr(n): 1130, 70113
Name of substance	mono-methylamine
Index No	612-001-00-9
EC No	200-820-0
REACH registration number	01-2119475496-25
CAS No	74-89-5

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)

Basic substance.
Intermediate.
Corrosion inhibitor.

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.de
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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
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1.4. Emergency telephone number

Emergency advice	Medical Emergency information in case of poisoning: Poison Information Center Mainz -24h- Phone +49 (0) 6131 19240 (service in German or English)
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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
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Flam. Gas 1	H220
Liquef. Gas	H280
Acute Tox. 4	H332
Skin Irrit. 2	H315
Eye Dam. 1	H318
STOT SE 3	H335

Hazard statements for physical hazards	
H220	Extremely flammable gas.

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H280 Contains gas under pressure; may explode if heated.

Hazard statements for health hazards

H315 Causes skin irritation.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

2.2. Label elements

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



GHS02



GHS05



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

H315 Causes skin irritation.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

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.

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

! Response

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.

P381 In case of leakage, eliminate all ignition sources.

Storage

P403 Store in a well-ventilated place.

Hazardous ingredients for labeling

mono-methylamine

Additional information

! Remark

The product should only be used as an intermediate for the synthesis of other substances.

Use only as an intermediate under strictly controlled conditions.

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.

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! Information pertaining to special dangers for human and environment

In high concentrations may cause asphyxiation.

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

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 74-89-5

mono-methylamine

EC No 200-820-0

Index No 612-001-00-9

REACH registration number 01-2119475496-25

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.

In the event of pulmonary irritation treat initially with corticoid spray, e.g. Ventolair- or Pulmicort- metered-dose aerosol (Ventolair and Pulmicort are registered trademarks).

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

Strong eye irritation.

Respiratory tract irritation

Coughing

Shortness of breath

Tears.

Contact with liquid may cause cold burns/frostbite.

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Physician's information / possible dangers

Risk of pulmonary oedema

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

Treatment (Advice to doctor)

Treat symptoms.

If necessary, give oxygen.

Continue to monitor for pneumonia and pulmonary oedema.

Pulmonary oedema prophylaxis.

! SECTION 5: Firefighting measures

5.1. Extinguishing media

! Suitable extinguishing media

Alcohol-resistant foam

Dry powder

Carbon dioxide

Water spray jet

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:

Nitrogen oxides (NO_x)

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.

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6.2. Environmental precautions

Collect contaminated water / firefighting water separately.
If possible, stop flow of product.
Eliminate ignition sources.
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.
Flush away residues with water.
Dispose of contaminated material in accordance with regulations.

6.4. Reference to other sections

Safe handling: see section 7
Disposal: see section 13
Personal protection equipment: see section 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.
Containers' temperature may not be increased above 50 °C.
Do not heat with open flames.
The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.
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.
Avoid release to the environment.
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.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.
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.

! 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.

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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.

Valve: Suitable materials: 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.

Unsuitable materials: Brass, copper alloys.

Advice on storage compatibility

Do not store together 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 acids.

Do not store together with oxidizing liquids or oxidizing solids.

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.

Keep container in a well-ventilated place

Protect of heat.

Recommended storage temperature: ≤ 25 °C.

Information on storage stability

Storage time: 24 months.

7.3. Specific end use(s)

! Recommendation(s) for intended use

Use as an intermediate under strictly controlled conditions.

! 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
74-89-5	Methylamine	WEL / TWA, 8 hours	13	10	EH40/2005, withdrawn
74-89-5	Methylamine	PEL, 8 hours	12	10	USA (OSHA)
74-89-5	Methylamine	REL, 8 hours	12	10	USA (NIOSH)

DNEL-/PNEC-values

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DNEL worker

CAS No	Substance name	Value	Code	Remark
74-89-5	mono-methylamine	0,72 mg/ m3	DNEL long-term inhalative (systemic)	Assessment factor 225, repeated dose toxicity.
		0,427 mg/m3	DNEL long-term inhalative (local)	Assessment factor 225, repeated dose toxicity.
		0,1 mg/kg bw/day	DNEL long-term dermal (systemic)	Assessment factor 100, repeated dose toxicity.

PNEC

CAS No	Substance name	Value	Code	Remark
74-89-5	mono-methylamine	0,078 mg/ kg dw	PNEC sediment, marine water	
		0,126 mg/ kg dw	PNEC soil	
		0,1263 mg/l	PNEC sewage treatment plant (STP)	Assessment factor 100
		0,016 mg/l	PNEC aquatic, intermittent release	
		0,776 mg/ kg dw	PNEC sediment, freshwater	Neurotoxicity.
		0,0016 mg/l	PNEC aquatic, marine water	Assessment factor 10000
		0,016 mg/l	PNEC aquatic, freshwater	Assessment factor 1000

8.2. Exposure controls**! Respiratory protection**

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Keep self contained breathing apparatus readily available for emergency use.

Short term: filter apparatus, filter AX

Short term: filter apparatus, combination filter ABEK-P3.

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

Safety gloves according to EN 374.

Safety gloves according to EN 388

Glove material specification [make/type, thickness, permeation time/life]: IIR, >= 0,7 mm, > 480 min

Glove material specification [make/type, thickness, permeation time/life]: FKM, >= 0,7 mm, > 480 min

! 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.

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! SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties****Appearance**

Gaseous / liquefied under pressure.

Colour

colourless

Odour

similar to amine

Odour threshold0,025 - 12 mg/m³**Important health, safety and environmental information**

	Value	Temperature	at	Method	Remark
pH value	14	20 °C	100 g/l		aqueous solution
boiling point	-6,3 °C		1013 hPa		
melting point	-93,46 °C				
Flash point	< -30 °C			DIN 51755	
Vapourisation rate	not determined				
Flammable (solid)	not applicable				
Flammability (gas)	inflammable				
Ignition temperature	430 °C			DIN 51794	
Self ignition temperature	not applicable				
Lower explosion limit	4,9 Vol-%				
Upper explosion limit	20,7 Vol-%				
Vapour pressure	3001 hPa	20 °C			
Relative density	1,4301 kg/m ³	0 °C	1013 mbar		
Vapour density	1,1				air = 1
Solubility in water	1080 g/l	20 °C			
Solubility/other					soluble in organic solvent
Partition coefficient n-octanol/water (log P O/W)	-0,57	20 °C			
Decomposition temperature	not determined				

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	Value	Temperature	at	Method	Remark
Viscosity dynamic	not applicable				

Oxidising properties

no

Explosive properties

no

9.2. Other information

Product smells offensive.

! 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).

10.3. Possibility of hazardous reactions

May react violently with oxidants.

Strong exothermic reaction with acids.

Reactions with numerous chemical compounds.

Reactions with alkali metals.

Reactions with alcohols.

10.4. Conditions to avoid

Heat sources / heat - risk of bursting.

Sources of ignition.

10.5. Incompatible materials**! Substances to avoid**

Acetylene

Alkali metals

Alcohols

hydrogen bromide (HBr)

Chlorine

Fluorine

Acid, concentrated

Oxidising agent

Nitrogen oxides (NOx)

10.6. Hazardous decomposition products

Nitrogen oxides (NOx)

Carbon monoxide and carbon dioxide.

Ammonia

Thermal decomposition

Remark No decomposition if used as directed.

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! 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	3555 ppm (4 h)	rat (male / female)	OECD 403	
Skin irritation	corrosive	rabbit		Aqueous solution.
Eye irritation	Causes serious eye damage.	rabbit eye		Aqueous solution.
Skin sensitization		Study scientifically not necessary.		
Sensitization respiratory system		Study scientifically not necessary.		

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Subacute Toxicity	NOAEL 75 ppm (98 - 119 d) Sub-acute inhalation toxicity 6 h/d, 5 d/w	rat (male)	OECD 412	
Subchronic Toxicity	NOAEL \geq 100 mg/kg (21 - 90 d) Subchronic oral toxicity (feed) 100 mg/kg bw/day	Rat		Also in case of a repeated intake the main effect is the local irritation.
Mutagenicity	Gene mutation			No experimental information on genotoxicity in vitro and in vivo available.
Reproduction-Toxicity	NOAEL 500 mg/kg Oral Aqueous solution.	Rat (male / female)		No indications of toxic effects were observed in reproduction studies in animals.

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Value	Species	Method	Validation
Carcinogenicity			The existing data do not justify a classification as a carcinogen.
Specific target organ toxicity (single exposure) May cause respiratory irritation.			
! 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 no			
! Toxicity test (Additional information) No experimental indication of genotoxicity in vitro (Ames-test negative). No experimental indication of genotoxicity in vivo (micronucleus test negative).			
Experiences made from practice May cause frostbite. Irritates respiratory tract.			

! SECTION 12: Ecological information**12.1. Toxicity****Ecotoxicological effects**

	Value	Species	Method	Validation
Fish	LC50 16 mg/l (48 h)	Leuciscus idus	OECD 203	After neutralization a reduction in harmful effect can be observed.
Daphnia	EC50 163 mg/l (48 h)	Daphnia magna	DIN 38412	The product causes changes in the pH value in the test system. The result relates to the unneutralized sample.
Algae	EC20 31 mg/l (60 min)	Pseudokirchneriella subcapitata		
Bacteria	EC20 240 mg/l (0,5 h)	activated sludge (kom.)	ISO 8192, oxygen consumption	The product causes changes in the pH value in the test system. The result relates to the unneutralized sample.

12.2. Persistence and degradability

	Elimination rate	Method of analysis	Method	Validation
Biological degradability	The product is readily biodegradable to OECD criteria.			readily degradable
Degradability	84 % (14 d)	BOD in % of theoretical OD	OECD 301 C	

12.3. Bioaccumulative potential

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Bioaccumulation improbable.

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

Behaviour in sewage plant

When low concentrations are discharged correctly into adapted biological sewage treatment plants, interference with the degradation activity of activated sludge is not likely.

Due to the pH-value, normally a neutralization is necessary before waste water is discharged into sewage treatment plants.

Additional ecological information

	Value	Method	Remark
BOD 5 d	380 mg/g		
AOX	The product contains no organically bound halogen.		

General regulation

Avoid release to the environment.

Product is not allowed to be discharged into the ground water or aquatic environment.

Product is not allowed to be discharged into aquatic environment, drains or sewage treatment plants.

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.

! SECTION 14: Transport information

	ADR/RID	IMDG	IATA-DGR
14.1. UN number	1061	1061	1061
14.2. UN proper shipping name	METHYLAMINE, ANHYDROUS	METHYLAMINE, ANHYDROUS	Methylamine, anhydrous
14.3. Transport hazard class(es)	2.1	2.1	2.1

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	ADR/RID	IMDG	IATA-DGR
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14.4. Packing group

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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: 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 % 20 °C 3001 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.

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: 12.1

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.