

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

Printed 27.07.2018
Revision 27.07.2018 (GB) Version 11.0

Di-methylamine
1120, 70112



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

1.1. Product identifier

Name of product	Di-methylamine Art-Nr(n): 1120, 70112
Name of substance	di-methylamine
Index No	612-001-00-9
EC No	204-697-4
REACH registration number	01-2119475495-27
CAS No	124-40-3

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.

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.com
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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	Giftinformationszentrum (Poison Control Centre) Mainz Phone +49 6131 19240
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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

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

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
STOT SE 3	H335	
Aquatic Chronic 3	H412	

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.**

Hazard statements for environmental hazards

H412 **Harmful to aquatic life with long lasting effects.**

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



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.**

Hazard statements for environmental hazards

H412 **Harmful to aquatic life with long lasting effects.**

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.
P273 Avoid release to the environment.
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.

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Storage

P403 Store in a well-ventilated place.

Hazardous ingredients for labeling

di-methylamine

Additional information

! Remark

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

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.

! Information pertaining to special dangers for human and environment

Dangerous substances are released in case of decomposition.
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 124-40-3

di-methylamine

EC No 204-697-4

Index No 612-001-00-9

REACH registration number 01-2119475495-27

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 treatment immediately.
Place and transport casualty in recovery position.

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 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.

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! 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

Do not induce vomiting.
Call for a doctor immediately.
Give water to drink in small sips.
Rinse out mouth thoroughly with water.

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

! Physician's information / possible symptoms

Strong eye irritation.
Respiratory tract irritation
Coughing
Cardiac arrhythmia (disordered cardiac rhythm).
Shortness of breath
Tears.
Contact with liquid may cause cold burns/frostbite.

Physician's information / possible dangers

Risk of pulmonary irritation
Risk of pulmonary oedema

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

! Treatment (Advice to doctor)

If necessary, give oxygen.
Continue to monitor for pneumonia and pulmonary oedema.
Pulmonary oedema prophylaxis.
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).
Monitor circulation.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

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.

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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.

6.2. Environmental precautions

Collect contaminated water / firefighting water separately.
If possible, stop flow of product.
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.
Take measures against electrostatically charging.
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.

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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.
Keep valves and fittings free from oil and grease.
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.

Wash hands before breaks and after work.

! Advice on protection against fire and explosion

The product is combustible.

Take precautionary measures against static discharges.

Formation of explosive gas mixtures in air.

Do not use sparking tools.

Pay attention to general rules of internal fire prevention.

Use only explosion-proof equipment.

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 agents.

! Further information on storage conditions

Ensure valve protection device is correctly fitted.

Store closed container at cool and aired place.

Store only in original container at temperature of 50°C maximum (=122°F).

Prevent cylinders from falling over.

Protect from heat/overheating.

7.3. Specific end use(s)

! Recommendation(s) for intended use

Use as an intermediate under strictly controlled conditions.

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! 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
124-40-3	Di-methylamine	WEL, 8 hours	3,8	2	EH40, UK
		Short-term	11	6	
124-40-3	Di-methylamine	PEL, 8 hours	18	10	OSHA, Table Z-1, USA

Indicative occupational exposure limit values (91/322/EEC, 2000/39/EC, 2004/37/EC, 2006/15/EC or 2009/161/EU)

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
124-40-3	di-methylamine	8 hours	3,8	2	
		Short-term	9,4	5	

DNEL-/PNEC-values

DNEL worker

CAS No	Substance name	Value	Code	Remark
124-40-3	di-methylamine	0,146 mg/ kg bw/day	DNEL long-term dermal (systemic)	Assessment factor 36
		30,2 mg/ m3	DNEL acute inhalative (systemic)	Assessment factor 300
		12,9 mg/ m3	DNEL long-term inhalative (local)	Assessment factor 10
		3,25 mg/ kg bw/day	DNEL acute dermal, short- term (systemic)	Assessment factor 1200
		1,027 mg/m3	DNEL long-term inhalative (systemic)	Assessment factor 9

PNEC

CAS No	Substance name	Value	Code	Remark
124-40-3	di-methylamine	3,26 mg/ kg dw	PNEC sediment, freshwater	Extrapolation
		100 mg/l	PNEC sewage treatment plant (STP)	Assessment factor 10, Extrapolation
		0,038 mg/ kg dw	PNEC soil	Extrapolation
		0,33 mg/ kg dw	PNEC sediment, marine water	Extrapolation
		0,06 mg/l	PNEC aquatic, freshwater	Assessment factor 10, Extrapolation
		0,006 mg/l	PNEC aquatic, marine water	Assessment factor 100, Extrapolation
		0,06 mg/l	PNEC aquatic, intermittent release	Assessment factor 10, Extrapolation

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8.2. Exposure controls

Respiratory protection

Breathing apparatus in the event of high concentrations.

Keep self contained breathing apparatus readily available for emergency use.

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

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

Chemical-resistant protective gloves complying with EN 374.

Glove material specification [make/type, thickness, permeation time/life]: NBR; 0,4 mm; \geq 480 min

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

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

Glove material specification [make/type, thickness, permeation time/life]: PVC, \geq 0,7 mm, \geq 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 complying with EN 14605.

Appropriate engineering controls

Transfer and handle only in enclosed systems.

! 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 threshold

not determined

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	not applicable				
boiling point	7 °C		1013 hPa		
melting point	-92,2 °C				
Flash point	-55 °C			DIN 51755	closed cup
Vapourisation rate	not determined				
Flammable (solid)	not applicable				
Flammability (gas)	inflammable				
Ignition temperature	402 °C			DIN 51794	
Self ignition temperature	402 °C				

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	Value	Temperature	at	Method	Remark
Lower explosion limit	2,8 Vol-%				
Upper explosion limit	14,4 Vol-%				
Vapour pressure	1703 hPa	20 °C			
Relative density	2,013 kg/m ³	0 °C	1013 mbar		
Vapour density	1,6				air = 1
Solubility in water	340 g/l	20 °C			miscible
Solubility/other					soluble in organic solvent
Partition coefficient n-octanol/water (log P O/W)	-0,38				
Decomposition temperature	not determined				
Viscosity dynamic	not applicable				
Oxidising properties	no				
Explosive properties	no				
9.2. Other information	Vapours are heavier than air.				

! 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 halogenated compounds.
Reactions with alcohols.

10.4. Conditions to avoid

Formation of explosive gas/air mixtures.
Heat sources / heat - risk of bursting.
Sources of ignition.
Avoid contact with open flames, glowing metal surfaces, etc..

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10.5. Incompatible materials

! Substances to avoid

aldehydes
Alcohols
Chlorine
Phosgene
hydrochloric gas
Fluorine
Hydrogen phosphides
mercury (Hg)
Sulphur dioxide (SO₂)
hydrogen sulphide (H₂S)
Nitrogen oxides (NO_x)
Copper, brass and other copper alloys.
Acids.
Oxidants.

10.6. Hazardous decomposition products

Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide.

Thermal decomposition

Remark No decomposition if used as directed.

! SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritation/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	ca. 1000 mg/kg	rat (male / female)		40% aqueous solution.
LD50 acute dermal	3900 mg/kg	rat (male / female)		40% aqueous solution.
LC50 acute inhalation	5290 ppm (1 h)	rat (male / female)		
Skin irritation	irritant	rabbit		40% aqueous solution.
Eye irritation	risk of strong eye injuries	rabbit eye		40% aqueous solution.
Skin sensitization	not applicable			
Sensitization respiratory system	not applicable			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
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	Value	Species	Method	Validation
Subchronic Toxicity	LOAEC 10 ppm (1 a) Inhalation	Rat (male / female)	6 h/d, 5 d/w	Also in case of a repeated intake the main effect is the local irritation.
Mutagenicity				No experimental information on genotoxicity in vivo available.
Reproduction-Toxicity	NOAEL 1000 mg/kg The product has not been tested. The information is derived from products of similar composition.	Rat (male / female)	OECD 414	No indications of toxic effects were observed in reproduction studies in animals.
Carcinogenicity				No indications of carcinogenic effects are available from long-term trials.

! 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

not applicable

Experiences made from practice

Irritates respiratory tract.

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

	Value	Species	Method	Validation
Fish	LC50 118 mg/l (96 h)	Oncorhynchus mykiss		
Daphnia	EC50 88,67 mg/l (48 h)	Daphnia magna	EU Method C.2	
Algae	EC50 9 mg/l (96 h)	Pseudokirchneriella subcapitata		
Bacteria	EC50 47 mg/l (17 h)	Pseudomonas putida	DIN 38412 T.8	

12.2. Persistence and degradability

	Elimination rate	Method of analysis	Method	Validation
Biological degradability	The product is readily biodegradable to OECD criteria.			

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	Elimination rate	Method of analysis	Method	Validation
Degradability	88 % (28 d)	BOD in % of theoretical OD	OECD 301 C	

Biological eliminability

At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.

12.3. Bioaccumulative potential

Because of the n-octanol/water distribution coefficient (log K_{ow}) accumulation in organisms is not expected.

12.4. Mobility in soil

High mobility
OECD 106
Koc: 4 - 508

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

Not known.

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.

! General regulation

Avoid release to the environment.

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	1032	1032	1032
14.2. UN proper shipping name	DIMETHYLAMINE, ANHYDROUS	DIMETHYLAMINE, ANHYDROUS	Dimethylamine, anhydrous

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	ADR/RID	IMDG	IATA-DGR
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. 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 >=99,5 % 20 °C 1703 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: 10.1

! 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.