

Dimethylamine

C₂H₇N**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

Product identifier	
Name of product	Dimethylamine Art-Nr.: 1120
Name of substance	Di-methylamine
Index No	612-001-00-9
EC No	204-697-4
REACH registration numbers	01-2119475495-27
CAS No	124-40-3

Manufacturer / Distributor:**Ehsan International Gases**

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Relevant identified uses of the substance or mixture and uses advised against**Identified uses****Sector of uses [SU]**

SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys).
SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites.
SU9 - Manufacture of fine chemicals

Product categories [PC]

PC19 - Intermediate
PC32 - Polymer preparations and compounds
PC0 - Other

Process categories [PROC]

PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC7 - Industrial spraying
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC14 - production of preparations or articles by tableting, compression, extrusion, pelettisation
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

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PROC21 - Low energy manipulation of substances bound in materials and/or articles PROC24
- High (mechanical) energy work-up of substances bound in materials and/or articles PROC15
- Use as laboratory reagent

Environmental release categories [ERC]

ERC2 - Formulation of preparations (mixtures)
ERC3 - Formulation in materials
ERC5 - Industrial use resulting in inclusion into or onto a matrix
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6c - Industrial use of monomers for manufacture of thermoplastics

Uses advised against

Remark

Do not use for private purposes (household).

Recommended intended purpose(s)

Basic substance.
Catalyst.
Laboratory reagent.
Corrosion inhibitor.

SECTION 2: Hazards identification

Classification of the substance or mixture

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

F+; R12
Xn; R20
Xi; R37/38
Xi; R41

R-phrases

12 Extremely flammable.
20 Harmful by inhalation.
37/38 Irritating to respiratory system and skin.
41 Risk of serious damage to eyes.

Additional hints

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

! 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	
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.

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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).

Label elements

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



GHS02



GHS04



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/sparks/open flames/hot surfaces. – 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 to fresh air and keep at rest in a position 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.

Storage

P403 Store in a well-ventilated place.

! Hazardous ingredients for labeling

Di-methylamine

Other hazards

! 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.

SECTION 3: Composition/ information on ingredients

Substances

Dimethylamine

 C_2H_7N

CAS No 124-40-3

Di-methylamine

EC No 204-697-4

Index No 612-001-00-9

REACH registration number 01-2119475495-27

SECTION 4: First aid measures

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.

! 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. 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.

Most important symptoms and effects, both acute and delayed

! Physician's information / possible symptoms

Coughing

Shortness of breath

Physician's information / possible dangers

Risk of pulmonary irritation

Risk of pulmonary oedema

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.

SECTION 5: Firefighting measures

Extinguishing media

! Suitable extinguishing media

Foam

Dry powder

Carbon dioxide

Water spray jet

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Extinguishing media which must not be used for safety reasons

Full water jet

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)

Advice for firefighters

Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated). Wear full protective clothing.

! Additional information

Cool endangered containers with water spray jet.

Exposure to fire may cause containers to rupture / explode.

Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.

Extinguish any other fire.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

See chapter 8.

Remove persons to safety.

Keep people away and stay on the upwind side.

Keep away sources of ignition.

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.

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.

Methods and material for containment and cleaning up

Ensure adequate air ventilation.

Flush away residues with water.

Reference to other sections

Informations for safe handling see chapter 7.

Informations for personal protective equipment see chapter 8.

SECTION 7: Handling and storage

Precautions for safe handling

! Advice on safe handling

Use only in thoroughly ventilated areas.

Transfer and handle only in enclosed systems.

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.

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Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.

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.
Use explosion-proof equipment / fittings and non-sparking tools.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in closed original container.
Ventilate store-rooms thoroughly.
Use transportable pressure equipment.
Suitable materials: Normalised steel and carbon steel, tempered steel, aluminium alloys.
Valve: Suitable materials: Carbon steels, aluminium alloys, stainless steel. Unsuitable materials: Brass, copper alloys.

! Advice on storage compatibility

Do not store with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuffs.
Do not store together with explosives.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with toxic liquids or toxic solids.
Do not store together with food.
Do not store together with acids.
Do not store together with oxidizing liquids or oxidizing solids.

! Further information on storage conditions

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

! Information on storage stability

Storage time: 24 months.

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See exposure scenario(s).

SECTION 8: Exposure controls/personal protection**Control parameters****Ingredients with occupational exposure limits to be monitored**

CAS No	Name	Code	[mg/m ³]	[ppm]	Remark
124-40-3	Dimethylamine	WEL, 8 hours	3,8	2	EH40, UK, 2007
		Short-term	11	6	
124-40-3	Dimethylamine	PEL, 8 hours	18	10	OSHA, Table Z-1, USA

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

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

! Additional advice

DNEL (workers, inhalation, long-term, systemic effects): 1,044 mg/m³ (0,6 ppm). DNEL (workers, dermal, long-term, systemic effects): 0,148 mg/kg.

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, combination filter ABEK-P3.

! Hand protection chemical-resistant gloves

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

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

! Eye protection safety goggles, in case of increased risk add protective face shield**! Skin protection**

Safety shoes with steel toe.

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

! General protective measures

Do not inhale gases.

! Hygiene measures

At work do not eat, drink and smoke.

! Limitation and surveillance of the environment

PNEC (freshwater): 0,006 mg/l

PNEC (sea water): 0.0006 mg/l / 0.006 mg/l (sporadic emission)

PNEC (freshwater sediment): 0,0053 mg/kg

PNEC (marine sediment): 0,00053 mg/kg

PNEC (soil): 0,046 mg/kg

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PNEC (waste water treatment plant): 4,7 mg/l
See chapter 7.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Colour	Odour
Gaseous / liquefied under pressure.	colourless	similar to amine

!

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	14	20 °C	350 g/l		aqueous solution
boiling point	7 °C		1013 hPa		
melting point	-92,2 °C				
Flash point	-55 °C			DIN 51755	
Flammability (gas)					Flammable.
Ignition temperature	402 °C			DIN 51794	
Autoignition	no				
Lower explosion limit	2,8 Vol-%				
Upper explosion limit	14,4 Vol-%				
Vapour pressure	1688 hPa	20 °C			
Density	0,657 g/cm ³	20 °C			information concerns to liquid phase
Rel. vapour density	1,557				air = 1
Solubility in water	340 g/l	20 °C			miscible
Solubility/other					soluble in organic solvent
Partition coefficient (log p_{OW})	-0,274	25 °C		OECD 107	
Viscosity dynamic	0,196 mPa*s	20 °C			liquid phase
Oxidizing properties	no				

! Explosive properties

Due to its structure the product is not classified as explosive.

Other information

Vapours are heavier than air.

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SECTION 10: Stability and reactivity

Reactivity

See section "Possibility of hazardous reactions".

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

May react violently with oxidants.

Strong exothermic reaction with acids.

Conditions to avoid

Formation of explosive gas/air mixtures.

Heat sources / heat - risk of bursting.

Sources of ignition.

Incompatible materials

! Materials to avoid

Copper, brass and other copper alloys.

Acids.

Oxidants.

Hazardous decomposition products

Nitrous gases

Carbon monoxide and carbon dioxide.

Thermal decomposition

Remark No decomposition if used as directed.

! 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.

Persistence and degradability

Biological degradability

The product is readily biodegradable to OECD criteria.

Degradability

88 % (28 d)

BOD in % of
theoretical OD

OECD 301 C

Elimination rate

Method of analysis

Method

Validation

Biological eliminability

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

Bioaccumulative potential

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

Mobility in soil

high mobility

Results of PBT and vPvB assessment

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SECTION 12: Ecological information

Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 118 mg/l (96 h)	Oncorhynchus mykiss		NOEC (30 d): 20 mg/l (O. mykiss); NOEC (50 d): 0,6 mg/l (O. mykiss)
Daphnia	EC50 48 mg/l (24 h)	Daphnia magna		
Algae	EC50 9 mg/l (96 h)	Selenastrum capricornutum		
Bacteria	EC10 > 1000 mg/l (30 h)	activated sludge (kom.)		

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

Other adverse effects

Not known.

! General regulation

Do not allow uncontrolled leakage of product into the environment.

SECTION 13: Disposal considerations

Waste treatment methods

Waste code No.

16 05 04*

Name of waste

gases in pressure containers (including halons) containing dangerous substances

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

! Recommendations for the product

Dispose of as hazardous waste.

Recommendations for packaging

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

SECTION 14: Transport information

! Land and inland navigation transport ADR/RID

UN 1032 DIMETHYLAMINE, ANHYDROUS, 2.1, (B/D), Classification code: 2F

! Marine transport IMDG

UN 1032 DIMETHYLAMINE, ANHYDROUS, 2.1

Ems: F-D, S-U

! Air transport ICAO/IATA-DGR

UN 1032 Dimethylamine, anhydrous, 2.1

Cargo aircraft only.

Special precautions for user

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

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

No transport as bulk according IBC - Code.

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SECTION 15: Regulatory information

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

VOC standard

VOC content >=99,5 % 20 °C 1620 hPa

Chemical Safety Assessment

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

Exposure scenarios (ESs) see http://www.ghc.de/pdf_e/es1120.001e.pdf.

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.

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

R 12 Extremely flammable.

R 20 Harmful by inhalation.

R 37/38 Irritating to respiratory system and skin.

R 41 Risk of serious damage to eyes.

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H331 Toxic if inhaled.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.