

DIMETHYLAMINE (DMA)

Specifications

CAS NO.

CAS NO.	124-40-3
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NATURE

NATURE	It is available as anhydrous (liquified gas under pressure) & 40% solution (Clear, colourless liquid).
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PHYSICAL PROPERTIES (FOR ANHYDROUS)

Empirical Formula	C ₂ H ₇ N
Structural formula	(CH ₃) ₂ NH
Molecular Wt.	45.08
Refractive Index	1.347
Colour (APHA) Max	15
Solubility in Water	Soluble
Autoignition Temperature	402 °C
Flammability Limits	L E L: 2.8 Vol % H E L: 14.4 Vol %
Critical Temperature	164.6 °C
Critical Pressure	51.7 Atm.

PHYSICAL PROPERTIES (For Anhydrous)

Sp. gravity at 25 °C	00.649
Boiling Point	06.9 °C
Freezing Point	-92.2 °C
Flash Point	----

PHYSICAL PROPERTIES (For 40% Solution)

Sp. gravity at 25 °C	00.892
Boiling Point	54.0 °C

Freezing Point	-37.00 °C
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Flash Point	-18.00 °C
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Vapour Pressure (For Anhydrous)

Temperature in °C	Pressure in kg/cm ²
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	1.7
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40	3.5
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60	6.2
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Vapour Pressure (For 40% solution)

Temperature in °C	Pressure in kg/cm ²
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20	0.3
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40	0.7
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60	1.4
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SPECIFICATIONS (For Anhydrous)

Content	Units %
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Purity	99.50 min
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Water	00.20 max
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Ammonia	00.02 max
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Other Amines/NOI	00.50 max
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SPECIFICATIONS (For 40% solution)

Content	Units %
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Purity	40.00 min
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Water	57.79 max
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Ammonia	00.01 max
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Other Amines/NOI	00.20 max
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MSDS

FIRE PROPERTIES

- Extremely flammable compounds.

PREVENTIVE MEASURES

1. PERSONAL PROTECTIVE EQUIPMENTS

- PVC suits, PVC gloves, PVC hoods, rubber goggles and gum boots are recommended to wear while doing any maintenance jobs.
- Air masks or cartridge masks are recommended for respiratory systems.

2. LEAKS AND SPILLS

- In case of leaks , Isolate the source from leaking point to reduce the pressure.
- Do not use water jets, but only water curtains.

3. HANDLING

- All equipments and containers are to be grounded properly to avoid any ignition from the static charges.
- DiMethylamines are highly corrosive to Aluminum, Copper, Zinc and their alloys.
- While loading into or unloading from the tanker, a must be taken to avoid direct contact of methylamines with mercury as it forms explosive mixture.

4. STORAGE

- Anhydrous methylamines storage and their storage yards are to got approved from the Department of explosive.
- No Aluminum,Copper,Zinc or their alloys shall be used.

5. SHIPPING

- All the amines are highly soluble in water. Their 40 % solutions can be filled in atmospheric pressure road tankers, tankcars or drums. But, a drum of thicker size is recommended for Indian conditions as the ambient temperatures can be high.

FIRST AID MEASURE

1. SKIN

- Strip Contaminated clothing from the body.
- Do not use any ointments on the skin.
- Cover the injured area with dry clothing or dressing.

2. EYES
- Immediately flush the eyes thoroughly with plenty of water keeping the eye lids wide open.
 - Do not use any ointments on the skin.
3. INHALATION
- Remove the victim atones to fresh air. If brathing is stopped artfical respiration should be administered.

Applications

PHARMACEUTICALS: To manufacture Anaesthetics like Pentocaine based on Dimethyl Aminoethanol, Tranquilizer like Sparine and Local Anaesthetics like Tetracaine. Used to manufacture Antihistamines like diphenhydramine, Mepyramine Maleate(Anthisan), Chlorpheniramine, Pheniramine. DMA is also used extensively in manufacture of Antibacterial like Trimethoprim.

AGRO CHEMICALS: As a raw material to manufacture Isoproturon, One of the most effective and widely used Systemic Weedicide. As a raw material in manufacturing Ziram (Zink Dimethyldithiocarbamate), Thiram (tetra methyl thirum disulphide) and Sodium or Potassium dimethyldithiocarbamate, which are effective for protection of crops from pathogenic fungi. As an intermediate or catalytic agent to manufacture Aldicab (Temik) Systemic Insecticide to control insects, mites and nematodes. To manufacture Herbecides like 2.4-D & 2.4-5 T dimethylamine salts, urea derivatives like Diuron, Monuron, Chlorocuron and Fenuron etc.

RAYON INDUSTRY: Used as a modifier in the manufacture of Viscose Rayon Filament and Tyre Cord, to improve the tensile strength.

SOLVENTS: As a raw material for the manufacture of powerful and versatile solvents like Dimethyl Acetamide (DMAC), Dimethyl formamide(DMF), Hexamethyl phosphoramidate used in acrylic fibre, pharamaceutical and other industries.

RUBBER CHEMICAL: As a raw material to manufacture Vulcanisation Accelerators such as Tetra methyl thiuram disulphide (TMTDS), Zinccdimethyldithiocarbamate, sodium dimethyl dithiocarbamate and potassium dimethyl dithiocarbamate.

ION EXCHANGE: Used in manufacture of water purification Ion Exchange Resins like quaternary ammonium salts based on Chloromethylated styrene copolymer and Dimethylamino ethanol.

DYES: Used in the manufacture of Acid Dyes and Stilbene Dyes

PROPRLANT: As a raw material to manufacture 1,1 -Dimethyl hydrazine.

MISC: used to manufacture Emulsifying Agent like Dimethylaminoethanol, 2-Amino, 2-Methyl-1 Propanol, surfactant like Lauryl Dimethyl amine oxide and Quaternary Ammonium compounds, which act as germicides.

PACKING: Anhydrous & Aqueous solutions are offered in bulk Road Tankers. Aqueous solution is offered in 210 litre capacity UN Approved M.S. drum containing 170 kg net of DMA. Small quantities of Anhydrous material can also be made available in cylinders provided by the customer on request.

IMDG CLASS: Anhydrous Class 2
Solution Class 3

PACKING GROUP AS PER IMO: Solution II

UN No. : Anhydrous 1032
Solution 1160