



## SAFETY DATA SHEET

### Methylamine ethanol solution (>32% in Ethanol)

According to the REACH etc. (Amendment etc.) (EU Exit) Regulations 2020 No. 1577, as amended.

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

##### 1.1. Product identifier

Product name	Methylamine ethanol solution (>32% in Ethanol)
Product number	90026624
CAS number	74-89-5
EC number	200-820-0

##### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Research and development. Industrial use
Uses advised against	Not suitable for human consumption or veterinary purposes.

##### 1.3. Details of the supplier of the safety data sheet

Supplier	Molekula Ltd. Lingfield Way, Darlington, DL1 4XX, United Kingdom +44 (0) 3302000333 info@molekula.com
----------	---

##### 1.4. Emergency telephone number

+44 (0) 7769276927

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

###### Classification (SI 2019 No. 720)

Physical hazards	Flam. Liq. 2 - H225
Health hazards	Acute Tox. 4 - H302 Acute Tox. 3 - H331 Skin Corr. 1 - H314 Eye Dam. 1 - H318 STOT SE 3 - H335
Environmental hazards	Not Classified

##### 2.2. Label elements

EC number	200-820-0
-----------	-----------

###### Hazard pictograms



Signal word

Danger

## Methylamine ethanol solution (>32% in Ethanol)

### Hazard statements

H225 Highly flammable liquid and vapour.  
 H302 Harmful if swallowed.  
 H331 Toxic if inhaled.  
 H314 Causes severe skin burns and eye damage.  
 H335 May cause respiratory irritation.

### Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P240 Ground and bond container and receiving equipment.  
 P241 Use explosion-proof electrical equipment.  
 P242 Use non-sparking tools.  
 P243 Take action to prevent static discharges.  
 P260 Do not breathe vapour/ spray.  
 P264 Wash contaminated skin thoroughly after handling.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
 P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.  
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 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.  
 P310 Immediately call a POISON CENTER/ doctor.  
 P363 Wash contaminated clothing before reuse.  
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 P403+P235 Store in a well-ventilated place. Keep cool.  
 P405 Store locked up.  
 P501 Dispose of contents/ container in accordance with national regulations.

### Contains

Methylamine

### 2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>Ethanol</b>		<b>50-75%</b>
CAS number: 64-17-5	EC number: 200-578-6	
<b>Classification</b>		
Flam. Liq. 2 - H225		
Eye Irrit. 2 - H319		

## Methylamine ethanol solution (>32% in Ethanol)

<b>Methylamine</b>	<b>25-50%</b>
CAS number: 74-89-5	
<b>Classification</b> Flam. Gas 1A - H220 Press. Gas (Comp.) - H280 Acute Tox. 4 - H302 Acute Tox. 3 - H331 Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>General information</b>	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.
<b>Inhalation</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. Place unconscious person on their side in the recovery position and ensure breathing can take place.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Keep affected person under observation. Get medical attention if symptoms are severe or persist.
<b>Skin contact</b>	Rinse with water.
<b>Eye contact</b>	Rinse immediately with plenty of water. Do not rub eye. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.
<b>Protection of first aiders</b>	It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

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

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	A single exposure may cause the following adverse effects: Drowsiness, dizziness, disorientation, vertigo. Unconsciousness. High concentrations may be fatal.
<b>Ingestion</b>	May cause irritation.
<b>Skin contact</b>	Redness. Irritating to skin.
<b>Eye contact</b>	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

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

<b>Notes for the doctor</b>	Treat symptomatically. Keep affected person under observation.
-----------------------------	--

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

## Methylamine ethanol solution (>32% in Ethanol)

**Suitable extinguishing media** The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire. Use dry powder, dry sand or dry earth to extinguish.

**Unsuitable extinguishing media** Do not use water jet as an extinguisher, as this will spread the fire.

### 5.2. Special hazards arising from the substance or mixture

**Specific hazards** Containers can burst violently or explode when heated, due to excessive pressure build-up. Flammable liquid and vapour. Vapours may be ignited by a spark, a hot surface or an ember. Vapours may form explosive mixtures with air. Fire-water run-off in sewers may create fire or explosion hazard. This product is toxic.

**Hazardous combustion products** Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapours. Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Nitrous gases (NO<sub>x</sub>).

### 5.3. Advice for firefighters

**Protective actions during firefighting** Avoid breathing fire gases or vapours. Evacuate area. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. Ventilate closed spaces before entering them. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

**Special protective equipment for firefighters** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions** Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated. Avoid inhalation of vapours and spray/mists. Use suitable respiratory protection if ventilation is inadequate.

### 6.2. Environmental precautions

**Environmental precautions** Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment. Risk of explosion

### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up** Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. Provide adequate ventilation. Absorb small quantities with paper towels and evaporate in a safe place. Once evaporation is complete, place paper in a suitable waste disposal container and seal securely. Large Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. The contaminated absorbent may pose the same hazard as the spilled material. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

## Methylamine ethanol solution (>32% in Ethanol)

### 6.4. Reference to other sections

**Reference to other sections** For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions** Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. This product is toxic. Immediate first aid is imperative. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

**Advice on general occupational hygiene** Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Store away from incompatible materials (see Section 10). Store locked up. Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Moisture sensitive. Store under inert gas.

**Storage class** Flammable liquid storage.

### 7.3. Specific end use(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure controls/Personal protection

### 8.1. Control parameters

### 8.2. Exposure controls

#### Protective equipment



#### Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Ensure the ventilation system is regularly maintained and tested. Good general ventilation should be adequate to control worker exposure to airborne contaminants. Observe any occupational exposure limits for the product or ingredients.

#### Eye/face protection

Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

## Methylamine ethanol solution (>32% in Ethanol)

<b>Hand protection</b>	For exposure up to 8 hours, wear gloves made of the following material: Butyl rubber. Protective gloves should have a minimum thickness of 0.3 mm. Frequent changes are recommended.  To protect hands from chemicals, wear gloves that are proven to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected.
<b>Other skin and body protection</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact.
<b>Hygiene measures</b>	Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.
<b>Respiratory protection</b>	Ensure all respiratory protective equipment is suitable for its intended use and is 'UKCA'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges suitable for intended use should be used. Full face mask respirators with replaceable filter cartridges suitable for intended use should be used. Half mask and quarter mask respirators with replaceable filter cartridges suitable for intended use should be used.
<b>Environmental exposure controls</b>	Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Liquid.
<b>Colour</b>	Colourless.
<b>Odour</b>	Characteristic.
<b>Odour threshold</b>	No information available.
<b>pH</b>	pH (concentrated solution): 11.2
<b>Melting point</b>	No information available.
<b>Initial boiling point and range</b>	No information available.
<b>Evaporation rate</b>	No information available.
<b>Flammability (solid, gas)</b>	Extremely flammable.
<b>Upper/lower flammability or explosive limits</b>	No information available.
<b>Vapour pressure</b>	3.140 hPa @ 20°C/68°F
<b>Vapour density</b>	No information available.
<b>Relative density</b>	0.756 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	Miscible with water. Soluble in the following materials: Methanol. Dimethylamine (124-40-3)
<b>Partition coefficient</b>	log Kow: -0.713 @25°C/77°F
<b>Auto-ignition temperature</b>	No information available.
<b>Decomposition Temperature</b>	No information available.

## Methylamine ethanol solution (>32% in Ethanol)

### 9.2. Other information

Molecular weight 31.06

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Reactivity See the other subsections of this section for further details.

#### 10.2. Chemical stability

Stability Stable under the prescribed storage conditions.

#### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions The following materials may react strongly with the product: Oxidising agents.

#### 10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Containers can burst violently or explode when heated, due to excessive pressure build-up. Static electricity and formation of sparks must be prevented. Moisture.

#### 10.5. Incompatible materials

Materials to avoid Avoid contact with the following materials: Oxidising materials. Acids - oxidising. Acids. Acid chlorides Acid anhydrides.

#### 10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours. Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Nitrous gases (NO<sub>x</sub>).

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute toxicity - oral

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

ATE oral (mg/kg) 1,515.15

##### Acute toxicity - dermal

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

##### Acute toxicity - inhalation

Summary Toxic if inhaled.

ATE inhalation (gases ppm) 2,124.24

##### Skin corrosion/irritation

Summary Causes skin irritation.

##### Serious eye damage/irritation

Summary Causes serious eye damage.

##### Respiratory sensitisation

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

##### Skin sensitisation

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

##### Germ cell mutagenicity

## Methylamine ethanol solution (>32% in Ethanol)

<b>Summary</b>	Based on available data the classification criteria are not met.
<b><u>Carcinogenicity</u></b>	
<b>Summary</b>	Based on available data the classification criteria are not met.
<b>IARC carcinogenicity</b>	None of the ingredients are listed or exempt.
<b><u>Reproductive toxicity</u></b>	
<b>Summary</b>	Based on available data the classification criteria are not met.
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>Summary</b>	May cause respiratory irritation.
<b>Target organs</b>	Respiratory system, lungs
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>Summary</b>	Based on available data the classification criteria are not met.
<b><u>Aspiration hazard</u></b>	
<b>Summary</b>	Based on available data the classification criteria are not met.
<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	A single exposure may cause the following adverse effects: Drowsiness, dizziness, disorientation, vertigo. Unconsciousness. High concentrations may be fatal.
<b>Ingestion</b>	May cause irritation.
<b>Skin contact</b>	Redness. Irritating to skin.
<b>Eye contact</b>	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.
<b>Route of exposure</b>	Ingestion Inhalation Skin and/or eye contact
<b>Target organs</b>	Respiratory system, lungs

### SECTION 12: Ecological information

<b>Ecotoxicity</b>	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.
--------------------	---

#### 12.1. Toxicity

##### Acute aquatic toxicity

<b>Summary</b>	Based on available data the classification criteria are not met.
----------------	--

##### Chronic aquatic toxicity

<b>Summary</b>	Based on available data the classification criteria are not met.
----------------	--

#### 12.2. Persistence and degradability

<b>Persistence and degradability</b>	The degradability of the product is not known.
--------------------------------------	--

#### 12.3. Bioaccumulative potential

<b>Bioaccumulative potential</b>	No data available on bioaccumulation.
----------------------------------	---------------------------------------

<b>Partition coefficient</b>	log Kow: -0.713 @25°C/77°F
------------------------------	----------------------------

#### 12.4. Mobility in soil

<b>Mobility</b>	No data available.
-----------------	--------------------



## Methylamine ethanol solution (>32% in Ethanol)

### 12.5. Results of PBT and vPvB assessment

### 12.6. Other adverse effects

Other adverse effects                      None known.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>General information</b>	The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.
<b>Disposal methods</b>	Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

## SECTION 14: Transport information

### 14.1. UN number

UN No. (ADR/RID)	3286
UN No. (IMDG)	3286
UN No. (ICAO)	3286
UN No. (ADN)	3286

### 14.2. UN proper shipping name

Proper shipping name (ADR/RID)	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (Methylamine ethanol solution (>32% in Ethanol))
Proper shipping name (IMDG)	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (Methylamine ethanol solution (>32% in Ethanol))
Proper shipping name (ICAO)	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (Methylamine ethanol solution (>32% in Ethanol))
Proper shipping name (ADN)	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (Methylamine ethanol solution (>32% in Ethanol))

### 14.3. Transport hazard class(es)

ADR/RID class	3
ADR/RID subsidiary risk	6.1,8
ADR/RID classification code	FTC
ADR/RID label	3
IMDG class	3
IMDG subsidiary risk	6.1,8
ICAO class/division	3
ICAO subsidiary risk	6.1,8

## Methylamine ethanol solution (>32% in Ethanol)

ADN class 3  
ADN subsidiary risk 6.1,8

### Transport labels



### 14.4. Packing group

ADR/RID packing group II  
IMDG packing group II  
ICAO packing group II  
ADN packing group II

### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant  
No.

### 14.6. Special precautions for user

EmS F-E, S-C  
ADR transport category 2  
Emergency Action Code •3WE  
Hazard Identification Number (ADR/RID) 368  
Tunnel restriction code (D/E)

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations Health and Safety at Work etc. Act 1974 (as amended).  
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].  
EH40/2005 Workplace exposure limits.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### Inventories

#### EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

## SECTION 16: Other information

## Methylamine ethanol solution (>32% in Ethanol)

<b>Abbreviations and acronyms used in the safety data sheet</b>	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
	ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
	RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
	IATA: International Air Transport Association.
	ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
	IMDG: International Maritime Dangerous Goods.
	CAS: Chemical Abstracts Service.
	ATE: Acute Toxicity Estimate.
	LC50: Lethal Concentration to 50 % of a test population.
	LD50: Lethal Dose to 50% of a test population (Median Lethal Dose).
	EC <sub>50</sub> : 50% of maximal Effective Concentration.
	PBT: Persistent, Bioaccumulative and Toxic substance.
	vPvB: Very Persistent and Very Bioaccumulative.
<b>Classification abbreviations and acronyms</b>	Flam. Liq. = Flammable liquid
	Acute Tox. = Acute toxicity
	Eye Dam. = Serious eye damage
	Skin Irrit. = Skin irritation
	STOT SE = Specific target organ toxicity-single exposure
<b>Classification procedures according to SI 2019 No. 720</b>	Acute Tox. 3 - H331: Eye Dam. 1 - H318: STOT SE 3 - H335: Skin Irrit. 2 - H315: : Calculation method. Flam. Liq. 3 - H226: : Expert judgement.
<b>Training advice</b>	Only trained personnel should use this material.
<b>Revision date</b>	15/11/2022
<b>Revision</b>	4
<b>Supersedes date</b>	01/06/2021
<b>SDS number</b>	170
<b>Hazard statements in full</b>	H220 Extremely flammable gas.
	H225 Highly flammable liquid and vapour.
	H280 Contains gas under pressure; may explode if heated.
	H302 Harmful if swallowed.
	H314 Causes severe skin burns and eye damage.
	H318 Causes serious eye damage.
	H319 Causes serious eye irritation.
	H331 Toxic if inhaled.
	H335 May cause respiratory irritation.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.