MATERIAL SAFETY DATA SHEET

Dimethylamine

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:	Dimethylamine
CAS Number:	124-40-3

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

Identified use: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company name: East Harbour Group Ltd
20 Clough Road, Severalls Industrial Park
Colchester, Essex, CO4 9QS
United Kingdom

Telephone: +44 (0) 333 242 0100
Email: info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone: 0800 246 1274

Section 2: Hazardous identification

2.1 Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Health hazards

Acute oral toxicity Category 4 (H302)
Skin Corrosion/irritation Category 1 B (H314)
Serious Eye Damage/Eye Irritation Category 1 (H318)
Carcinogenicity Category 2 (H351)
Specific target organ toxicity - (single exposure) Category 3 (H335) (H336)

Environmental hazards

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

Physical hazards

Flammable liquids Category 2 (H225)

2.2 Label elements

Dimethylamine

Hazard Statements
H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
EUH019 - May form explosive peroxides

Precautionary Statements
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
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 or doctor/ physician

2.3 Other hazards
None

Section 3: Composition/information on ingredients

3.2 Mixtures

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Tetrahydrofuran	109-99-9	EEC No. 203-726-8	89	Flam. Liq. 2 (H225) Acute Tox. 4 (H302) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT SE 3 (H336) Carc. 2 (H351) (EUH019)
di-methylamine...%	124-40-3	EEC No. 204-697-4	11	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Corr. 1B (H314) Eye Dam. 1 (H318)
				STOT SE 3 (H335) Flam. Liq. 1 (H224)

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Section 4: First aid measures

4.1 Description of first aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.
Ingestion	Do not induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2 Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or oesophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically. Symptoms may be delayed.

Section 5: Fire-fighting measures

5.1 Fire Fighting Media and Instructions:

Suitable Extinguishing Media	CO_2, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
Extinguishing media which must not be used for safety reasons	No information available.

5.2 Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

5.3 Advice for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2 Environmental precautions
Should not be released into the environment.

6.3 Methods and material for containment and cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4 Reference to other sections
Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and storage

7.1 Precautions for safe handling
Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapours or spray mist. Do not ingest. If peroxide formation is suspected, do not open or move container. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities
Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Shelf life 12 months. May form explosive peroxides on prolonged storage. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Keep away from heat and sources of ignition.

7.3 Specific end use(s)
Use in laboratories

Section 8: Exposure controls/personal protection

8.1 Control parameters
Exposure limits
List source(s): **EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	The United Kingdom	European Union	Ireland
Tetrahydrofuran	STEL: 100 ppm 15 min STEL: 300 mg/m^3 15 min TWA: 50 ppm 8 hr TWA: 150 mg/m^3 8 hr Skin	TWA: 50 ppm 8 hr TWA: 150 mg/m^3 8 hr STEL: 100 ppm 15 min STEL: 300 mg/m^3 15 min Possibility of significant uptake through the skin	TWA: 50 ppm 8 hr. TWA: 150 mg/m^3 8 hr. STEL: 100 ppm 15 min STEL: 300 mg/m^3 15 min Skin
di-methylamine...%	STEL: 6 ppm 15 min STEL: 11 mg/m^3 15 min TWA: 2 ppm 8 hr TWA: 3.8 mg/m^3 8 hr	TWA: 2 ppm 8 hr TWA: 3.8 mg/m^3 8 hr STEL: 5 ppm 15 min STEL: 9.4 mg/m^3 15 min	TWA: 2 ppm 8 hr. TWA: 3.8 mg/m^3 8 hr. STEL: 5 ppm 15 min STEL: 9.4 mg/m^3 15 min

Biological limit values
List source(s):

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration No information available. **(PNEC)**

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8.2 Exposure controls

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber Nitrile rubber Viton (R) Neoprene gloves	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g.

sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: low boiling organic solvent Type AX Brown conforming to

EN371 or Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

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Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Colourless		
Physical State	Liquid		
Odor	No information available		
Odor Threshold	No data available		
pH	No information available		
Melting Point/Range	No data available		
Softening Point	No data available		
Boiling Point/Range	No information available		
Flash Point	-36 °C / -32.8 °F		Method - No information available
Evaporation Rate	No data available		
Flammability (solid, gas)	Not applicable		Liquid
Explosion Limits	No data available		
Vapor Pressure	No data available		
Vapor Density	No information available		(Air = 1.0)
Specific Gravity / Density	0.850		
Bulk Density	Not applicable		Liquid
Water Solubility	Miscible		
Solubility in other solvents	No information available		
Partition Coefficient (n-octanol/water)			
Component log Pow	Tetrahydrofuran	0.45	di-methylamine -0.274
Autoignition Temperature	No data available		Vapours may form explosive mixtures
Decomposition Temperature	No data available		with air
Viscosity	No data available		
Explosive Properties	No information available		
Oxidizing Properties	No information available		

9.2 Other information

None

Section 10: Stability and Reactivity

10.1 Reactivity	None known, based on information available
10.2 Chemical Stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing

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10.4 Conditions to avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition
10.5 Incompatible materials	Strong oxidizing agents.
10.6 Hazardous decomposition products	Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating gases and vapours

Section 11: Toxicological Information

Product Information

(a) Acute toxicity

Oral	Category 4
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrahydrofuran	1650 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	180 mg/L (Rat) 1 h 53.9 mg/L (Rat) 4 h
di-methylamine...%	LD50 = 698 mg/kg (Rat)	LD50 = 3900 mg/kg (Rat)	LC50 = 4540 ppm (Rat) 6 h

(b) skin corrosion / irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available

Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen Limited evidence of a carcinogenic effect

Component	EU	UK	Germany	IARC
Tetrahydrofuran				Group 2B

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system, Central nervous system (CNS).

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; No data available

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or oesophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Inhalation of high concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression.

Section 12: Ecological Information

12.1 Toxicity
Ecotoxicity effects
This product contains the following substance(s) which are hazardous for the environment

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Tetrahydrofuran	2160 mg/l LC50 = 96 h Pimephales promelas Leuciscus idus: LC50: 2820 mg/L/48h	EC50 48 h 3485 mg/l EC50: >10000 mg/L/24h		
di-methylamine...%	LC50: 127 - 349 mg/L, 96h semi-static (Poecilia reticulata) LC50: = 210 mg/L, 96h static (Poecilia reticulata) LC50: = 120 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 396 mg/L, 96h static (Brachydanio rerio) LC50: 111 - 125 mg/L, 96h (Oncorhynchus mykiss)	EC50: = 88.7 mg/L, 48h (Daphnia magna Straus)	EC50: = 9 mg/L, 96h (Pseudokirchneriella subcapitata)	

12.2 Persistence and degradability
Persistence
Persistence is unlikely, Soluble in water, based on information available, Miscible with water.

12.3 Bioaccumulative potential
Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Tetrahydrofuran	0.45	No data available
di-methylamine...%	-0.274	No data available

12.4 Mobility in soil
The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

12.5 Results of PBT and vPvB assessment
No data available for assessment

12.6 Other adverse effects

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors Evaluated Substances	Japan - Endocrine Disruptor Information
Tetrahydrofuran	Group III Chemical		

Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

Section 13: Disposal considerations

13.1 Waste treatment methods

Waste from Residues / Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Section 14: Transport Information

IMDG/IMO

14.1 UN number UN2924
14.2 UN proper shipping name FLAMMABLE LIQUID, CORROSIVE, N.O.S
14.3 Transport hazard class(es) 3
Subsidiary Hazard Class 8
14.4 Packing group II

ADR

14.1 UN number UN2924
14.2 UN proper shipping name FLAMMABLE LIQUID, CORROSIVE, N.O.S
14.3 Transport hazard class(es) 3
Subsidiary Hazard Class 3 8
14.4 Packing group II

IATA

14.1 UN number	UN2924
14.2 UN proper shipping name	FLAMMABLE LIQUID, CORROSIVE, N.O.S
14.3 Transport hazard class(es)	3
Subsidiary Hazard Class	8
14.4 Packing group	II
14.5 Environmental hazards	No hazards identified
14.6 Special precautions for user	No special precautions required
14.7 Transport in bulk according to	Not applicable, packaged goods

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Tetrahydrofuran	203-726-8	-		X	X	-	X	X	X	X	X
di-methylamine...%	204-697-4	-		X	X	-	X	X	X	X	X

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Tetrahydrofuran	WGK 1	
di-methylamine...%	WGK 2 WGK 1	Class I : 20 mg/m^3 (Massenkonzentration)
Component	**France - INRS (Tables of occupational diseases)**	
Tetrahydrofuran	Tableaux des maladies professionnelles (TMP) - RG 84	
di-methylamine...%	Tableaux des maladies professionnelles (TMP) - RG 49,RG 49bis	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

15.2 Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

Dimethylamine

Section 16: Other Information

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
EUH019 - May form explosive peroxides
H224 - Extremely flammable liquid and vapor
H225 - Highly flammable liquid and vapor
H319 - Causes serious eye irritation
H332 - Harmful if inhaled

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