

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

### 1.1 Product identifier

Trade name: Toolfusion® 1A

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

General use: Epoxy resin  
Reserved for industrial and professional use.

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

Company name: AIRTECH EUROPE SARL  
Street/POB-No.: Z.I. Haneboesch  
Postal Code, city: 4562 Differdange  
Luxemburg  
WWW: www.airtech.lu  
E-mail: sales@airtech.lu  
Telephone: +352-582282-1  
Telefax: +352-584935  
Dept. responsible for information:  
Telephone: +352-582282-1, E-mail: sales@airtech.lu

### 1.4 Emergency telephone number

GIZ-Nord, Germany Telephone: +49 (0)551-19240

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

Xi; R36/38 Irritating to eyes and skin.

Sens.; R43 May cause sensitisation by skin contact.

N; R51-53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 2.2 Label elements

#### Labelling (67/548/EEC or 1999/45/EC)



Xi



N

irritant

dangerous for the environment

R phrase(s):	R 36/38	Irritating to eyes and skin.
	R 43	May cause sensitisation by skin contact.
	R 51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S phrase(s):	S 24/25	Avoid contact with skin and eyes.
	S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S 28	After contact with skin, wash immediately with soap and plenty of water.
	S 37/39	Wear suitable gloves and eye/face protection.
	S 61	Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Special labelling**

Text for labelling:

Contains epoxy containing compounds: 1,4-bis(2,3-Epoxypropoxy)butane, Bisphenol-A-(epichlorhydrin) epoxy resin (molecular weight <=700) and Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

**2.3 Other hazards**

Thermal decomposition can lead to the escape of irritating gases and vapours. May cause respiratory irritation. May be harmful if swallowed. Special danger of slipping by leaking/spilling product.

**SECTION 3: Composition / information on ingredients**

3.1 Substances: not applicable

**3.2 Mixtures**

Hazardous ingredients:

Ingredient	Designation	Content	Classification
EC No. - CAS 25085-99-8	Bisphenol A epoxy resin	< 95 %	DSD/DPD: Xi, N; R 36/38, 43, 51/53 CLP: Skin Irrit. 2; H315. Eye Irrit. 2; H319. Skin Sens. 1; H317. Aquatic Chronic 2; H411.
EC No. 500-033-5 CAS 25068-38-6	Reaction product with Bisphenol A-epichlorhydrin epoxy resin (molecular weight = 700)	< 95 %	DSD/DPD: Sens.; R43. N; R51-53. Xi; R36/38. CLP: Skin Irrit. 2; H315. Eye Irrit. 2; H319. Skin Sens. 1; H317. Aquatic Chronic 2; H411.
EC No. 500-006-8 CAS 28064-14-4	Bisphenol-F-epichlorhydrine resin	< 20 %	DSD/DPD: Sens.; R43. N; R51-53. Xi; R36/38. CLP: Skin Irrit. 2; H315. Eye Irrit. 2; H319. Skin Sens. 1; H317. Aquatic Chronic 2; H411.
EC No. 219-371-7 CAS 2425-79-8	1,4-bis(2,3-Epoxypropoxy)butane	< 10 %	DSD/DPD: Sens.; R43. R52-53. Xi; R36/38. Xn; R20/21. CLP: Acute Tox. 4; H312. Acute Tox. 4; H332. Skin Irrit. 2; H315. Eye Irrit. 2; H319. Skin Sens. 1; H317. Aquatic Chronic 3; H412.
EC No. 271-846-8 CAS 68609-97-2	Oxirane, mono[(C12-14-alkyloxy)methyl] derivs	< 10 %	DSD/DPD: Sens.; R43. Xi; R36/38. CLP: Skin Irrit. 2; H315. Skin Sens. 1; H317.

**SECTION 4: First aid measures**
**4.1 Description of first aid measures**

- In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing. In case of breathing stop use artificial aspiration immediately. In case of breathing difficulties administer oxygen. Seek medical attention.
- In case of skin contact: Contaminated/fouled clothing and shoes must be removed immediately. After contact with skin, wash immediately with soap and plenty of water. Seek medical treatment in case of troubles.
- After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently seek the immediate attention of an ophthalmologist.

After swallowing: Rinse mouth with water. Immediately get medical attention. If person is clearly conscious, have them drink two glasses of water to dilute ingested material.  
Do not induce vomiting. Never give an unconscious person anything through the mouth.

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

In case of inhalation:

Thermal decomposition can lead to the escape of irritating gases and vapours. May cause respiratory irritation.

In case of ingestion: May be harmful if swallowed.

After contact with skin: Irritation, redness, pain, Sensitisation.

After eye contact: Irritation, redness, pain.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media:

Water fog, extinguishing powder, foam, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

High power water jet.

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

This material is combustible, but will not ignite readily. Emits toxic fumes under fire conditions.

In case of fire may be liberated: Aldehydes, acids, phenols, carbon monoxide and carbon dioxide. Formation of numerous unknown compounds is possible.

### 5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information:

Hazchem-Code: •3Z

Seal off endangered area. Heating causes rise in pressure with risk of bursting. Cool endangered containers with water spray and, if possible, remove from danger zone. Fight fire from a safe distance. Stay upwind/keep distance from source. Use water spray jet to knock down vapours. Do not allow fire water to penetrate into surface or ground water.

## SECTION 6: Accidental release measures

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

Avoid formation of aerosols/vapours. Avoid inhalation and contact with skin and eyes.

Respiratory protection in case of aerosol or vapour formation. Wear protective equipment. Keep away from unprotected people. Ensure adequate ventilation, especially in confined areas.

### 6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains. If necessary notify appropriate authorities.

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

Dam spills. Soak up with absorbent materials such as sand, siliceous earth, acid- or universal binder. Store in special closed containers and dispose of according to ordinance. Dispose of waste according to applicable legislation.

Additional information:

Special danger of slipping by leaking/spilling product.

## 6.4 Reference to other sections

Refer additionally to section 8 and 13.

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Avoid contact with skin, eyes, and clothing. Do not breathe vapour/aerosol. Use suitable personal protective equipment to protect skin and eyes. Take care when re-opening already used containers. Handle and open container with care. When using do not eat, drink or smoke. Wash hands before breaks and after work.

Precautions against fire and explosion: Take standard precautions to prevent fire.

## 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place. Keep away from sources of ignition. Store in a dry place. Do not drop, drag or bang the container.

Shelf life: 18 months at 22 °C.

Hints on joint storage: Do not store together with strong bases, oxidizing agents, strong acids or amines. Keep away from food and drinks.

Storage class: 10 = Combustible liquids, unless storage class 3

## 7.3 Specific end use(s)

No information available.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

Additional information: Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

Provide adequate ventilation.

## Personal protection equipment

### Occupational exposure controls

Respiratory protection: If vapours form, use respiratory protection.  
Recommended: Use filter type A (= against vapours of organic substances) according to EN 14387.

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection: Protective gloves according to EN 374.  
Glove material: Nitrile rubber or neoprene.  
layer thickness (recommended): >0.5 mm.  
Breakthrough time: not tested.  
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166

Body protection: Wear suitable protective clothing.

General protection and hygiene measures:

Avoid contact with skin, eyes, and clothing. Take off contaminated clothing and wash it before reuse. Do not breathe vapour/aerosol. Have eye wash bottle or eye rinse ready at work place. When using do not eat, drink or smoke. Wash hands before breaks and after work.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid Colour: black
Odour:	weak
Odour threshold:	no data available
pH value:	neutral
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	no data available
Flash point/flash point range:	> 175 °C
Evaporation rate:	no data available
Flammability:	This material is combustible, but will not ignite readily.
Explosive properties:	no data available
Explosion limits:	no data available
Vapour pressure:	negligible
Vapour density:	no data available
Density:	0.95 g/mL
Solubility:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Viscosity, dynamic:	no data available
Explosive properties:	no data available
Oxidizing characteristics:	no data available

### 9.2 Other information

Additional information: no data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

refer to 10.3

### 10.2 Chemical stability

Stable under recommended storage conditions.

Shelf life: 18 months at 22 °C.

### 10.3 Possibility of hazardous reactions

Exothermic reactions with incompatible materials.

### 10.4 Conditions to avoid

Keep away from heat. Avoid open flames. Avoid formation of aerosols/vapours.

### 10.5 Incompatible materials

Strong oxidizing agents, strong Lewis acids or mineral acids and strong bases (organic and inorganic).

## 10.6 Hazardous decomposition products

In case of fire may be liberated: aldehyde, acids, phenols, silicon dioxide, carbon monoxide and carbon dioxide.

Formation of numerous unknown compounds is possible.

Thermal decomposition: no data available

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Toxicological effects: Acute toxicity (oral): Lack of data.  
Acute toxicity (dermal): Lack of data.  
Acute toxicity (inhalative): Lack of data.  
Skin corrosion/irritation: Skin Irrit. 2; H315 = Causes skin irritation.  
Eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.  
Sensitisation to the respiratory tract: Lack of data.  
Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction.  
Germ cell mutagenicity/Genotoxicity: Lack of data.  
Carcinogenicity: Lack of data.  
Reproductive toxicity: Lack of data.  
Effects on or via lactation: Lack of data.  
Specific target organ toxicity (single exposure): Lack of data.  
Specific target organ toxicity (repeated exposure): Lack of data.  
Aspiration hazard: Lack of data.

Other information: Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.

### Symptoms

In case of inhalation:

Thermal decomposition can lead to the escape of irritating gases and vapours. May cause respiratory irritation.

In case of ingestion: May be harmful if swallowed.

After contact with skin: Irritation, redness, pain, Sensitisation.

After eye contact: Irritation, redness, pain.

## SECTION 12: Ecological information

### 12.1 Toxicity

Aquatic toxicity: Toxic to aquatic life with long lasting effects.

### 12.2. Persistence and degradability

Further details: no data available

### 12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:  
no data available

### 12.4 Mobility in soil

no data available

### 12.5 Results of PBT and vPvB assessment

no data available

## 12.6 Other adverse effects

General information: Do not allow to penetrate into soil, waterbodies or drains.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste key number: 08 04 09\* = Waste adhesives and sealants containing organic solvents or other dangerous substances.

MFSU = manufacture, formulation, supply and use

\* = Evidence for disposal must be provided.

Recommendation: Incinerate according to applicable local, state and federal regulations.

#### Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled. Do not remove label until container is thoroughly cleaned.

## SECTION 14: Transport information

### 14.1 UN number

ADR/RID, IMDG, IATA: 3082

### 14.2 UN proper shipping name

ADR/RID, IMDG, IATA: UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Bisphenol epoxy resins)

### 14.3 Transport hazard class(es)

ADR/RID: Class 9, Code: M6

IMDG: Class 9, Subrisk -

IATA: Class 9

### 14.4 Packing group

ADR/RID, IMDG, IATA: III

### 14.5 Environmental hazards

Marine pollutant: Yes

### 14.6 Special precautions for user

#### Land transport (ADR/RID)

Warning board: ADR/RID: Kemmler-number 90, UN number 3082

Hazard label: 9

Special provisions: 274 335 601

Limited quantities: 5 L

EQ: E1

Contaminated packaging - Instructions: P001 IBC03 LP01 R001

Contaminated packaging - Special provisions: PP1

Special provisions for packing together: MP19

Portable tanks - Instructions: T4

Portable tanks - Special provisions: TP1 TP29

Tank coding: LGBV

Tunnel restriction code: E





**Sea transport (IMDG)**

EmS:	F-A, S-F
Special provisions:	274, 335
Limited quantities:	5 L
EQ:	E1
Contaminated packaging - Instructions:	P001, LP01
Contaminated packaging - Provisions:	PP1
IBC - Instructions:	IBC03
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T4
Tank instructions - Provisions:	TP2, TP29
Stowage and segregation:	Category A.
Properties and observations:	-
Segregation group:	none

**Air transport (IATA)**

Hazard:	Miscellaneous
EQ:	E1
Passenger Ltd.Qty.:	Pack.Instr. Y964 - Max. Net Qty/Pkg. 30 kg G
Passenger:	Pack.Instr. 964 - Max. Net Qty/Pkg. 450 L
Cargo:	Pack.Instr. 964 - Max. Net Qty/Pkg. 450 L
Special Provisioning:	A97 A158
ERG:	9L

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

no data available

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations - Great Britain**

Hazchem-Code: •3Z

**National regulations - EC member states****Labelling of packaging with <= 125mL content**

R phrase(s):	R 36/38	Irritating to eyes and skin.
	R 43	May cause sensitisation by skin contact.
	R 51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S phrase(s):	S 24/25	Avoid contact with skin and eyes.
	S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S 28	After contact with skin, wash immediately with soap and plenty of water.
	S 37/39	Wear suitable gloves and eye/face protection.
	S 61	Avoid release to the environment. Refer to special instructions/Safety data sheets.

**15.2 Chemical Safety Assessment**

For this mixture a chemical safety assessment is not required.



## SECTION 16: Other information

### Further information

Wording of the H-phrases under paragraph 2 and 3:

- H312 = Harmful in contact with skin.
- H315 = Causes skin irritation.
- H317 = May cause an allergic skin reaction.
- H319 = Causes serious eye irritation.
- H332 = Harmful if inhaled.
- H411 = Toxic to aquatic life with long lasting effects.
- H412 = Harmful to aquatic life with long lasting effects.

Wording of the R-phrases under section 2 and 3:

- R 20/21 = Harmful by inhalation and in contact with skin.
- R 36/38 = Irritating to eyes and skin.
- R 43 = May cause sensitisation by skin contact.
- R 51/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R 52/53 = Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Reason of change: Changes in section 2: Labelling  
Changes in section 3-15: General revision

### Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

This data sheet cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, and which additional precautions may be necessary. All health and safety information contained in this data sheet should be provided to your employees and customers. It is your responsibility to develop appropriate workplace instructions and training programmes for employees.

As the conditions and methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. All statements or suggestions are made without warranty, expressed or implied, regarding accuracy of information, the hazards connected with the use of the product or the results to be obtained from the use thereof.

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

### 1.1 Product identifier

Trade name: Toolfusion® 1B

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

General use: Curing agent.  
Reserved for industrial and professional use.

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

Company name: AIRTECH EUROPE SARL

Street/POB-No.: Z.I. Haneboesch

Postal Code, city: 4562 Differdange  
Luxemburg

WWW: www.airtech.lu

E-mail: sales@airtech.lu

Telephone: +352-582282-1

Telefax: +352-584935

Dept. responsible for information:

Telephone: +352-582282-1, E-mail: sales@airtech.lu

### 1.4 Emergency telephone number

GIZ-Nord, Germany Telephone: +49 (0)551-19240

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

C; R35 Causes severe burns.

Xn; R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

Xn; R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Xi; R37 Irritating to respiratory system.

Sens.; R43 May cause sensitisation by skin contact.

N; R51-53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 2.2 Label elements

#### Labelling (67/548/EEC or 1999/45/EC)



C

corrosive



N

dangerous for the environment

R phrase(s):

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 35 Causes severe burns.

R 37 Irritating to respiratory system.

R 43 May cause sensitisation by skin contact.

R 48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Toolfusion® 1B**

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S phrase(s):	S 53	Avoid exposure - obtain special instructions before use.
	S 1	Keep locked up.
	S 24/25	Avoid contact with skin and eyes.
	S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S 28	After contact with skin, wash immediately with soap and plenty of water.
	S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S 61	Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Special labelling**

Text for labelling:

Contains 4,4'-Methylenebis(cyclohexylamine), Cyclohex-1,2-ylenediamine, Triethylentetramine, 4,4'-Isopropylidenediphenol.  
Restricted to professional users.

**2.3 Other hazards**

Special danger of slipping by leaking/spilling product.

**SECTION 3: Composition / information on ingredients**

3.1 Substances: not applicable

**3.2 Mixtures**

Chemical characterisation: A mixture of amines.

## Hazardous ingredients:

Ingredient	Designation	Content	Classification
EC No. 217-168-8 CAS 1761-71-3	4,4'-Methylenebis (cyclohexylamine)	< 55 %	DSD/DPD: Xn; R22. Xn; R48/22. C; R35. Sens.; R43. N; R51-53. CLP: Acute Tox. 4; H302. Skin Corr. 1A; H314. Skin Sens. 1; H317. STOT RE 2; H373. Aquatic Chronic 2; H411.
EC No. 211-776-7 CAS 694-83-7	Cyclohex-1,2-ylenediamine	< 55 %	DSD/DPD: C; R35. Xi; R37. Xn; R20/21/22. CLP: Acute Tox. 4; H302. Acute Tox. 4; H312. Acute Tox. 4; H332. Skin Corr. 1A; H314. STOT SE 3; H335.
EC No. 500-055-5 CAS 26950-63-0	Triethylentetramine, propoxylated	< 15 %	DSD/DPD: Xn; R21. C; R34. Sens.; R43. R52-53. CLP: Acute Tox. 4; H312. Skin Corr. 1B; H314. Skin Sens. 1; H317. Aquatic Chronic 3; H412.
EC No. 203-950-6 CAS 112-24-3	Triethylentetramine	< 10 %	DSD/DPD: Xn; R21. C; R34. Sens.; R43. R52-53. CLP: Acute Tox. 4; H312. Skin Corr. 1B; H314. Skin Sens. 1; H317. Aquatic Chronic 3; H412.
EC No. 210-484-7 CAS 616-47-7	1-Methylimidazole	< 5 %	DSD/DPD: C; R34. Xn; R21/22. CLP: Acute Tox. 4; H302. Acute Tox. 4; H312. Skin Corr. 1B; H314.
EC No. 205-411-0 CAS 140-31-8	2-Piperazin-1-ylethylamine	< 5 %	DSD/DPD: C; R34. Sens.; R43. R52-53. Xn; R21/22. CLP: Acute Tox. 4; H302. Acute Tox. 4; H312. Skin Corr. 1B; H314. Skin Sens. 1; H317. Aquatic Chronic 3; H412.
EC No. 201-245-8 CAS 80-05-7	4,4'-Isopropylidenediphenol	< 5 %	DSD/DPD: Xi; R37. Xi; R41. Sens.; R43. Repr. Cat. 3; R62. R52. CLP: Eye Dam. 1; H318. Skin Sens. 1; H317. Repr. 2; H361f. STOT SE 3; H335.
EC No. 200-712-3 CAS 69-72-7	Salicylic acid	< 5 %	DSD/DPD: Xn; R22. Xi; R41. CLP: Acute Tox. 4; H302. Eye Dam. 1; H318.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General information:	First aider: Pay attention to self-protection!
In case of inhalation:	Move victim to fresh air, put at rest and loosen restrictive clothing. In case of breathing stop use artificial aspiration immediately. In case of breathing difficulties administer oxygen. Seek medical attention.
In case of skin contact:	After contact with skin, wash immediately with soap and plenty of water. Change contaminated clothing. Immediately get medical attention.

- After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently seek the immediate attention of an ophthalmologist.
- After swallowing: Immediately get medical attention. Never give anything by mouth to an unconscious person. Rinse mouth immediately and drink plenty of water. Do not induce vomiting without medical assistance.

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

In case of inhalation:

Harmful if inhaled. The following symptoms may occur: Irritation, sore throat, headache, fatigue, dizziness, cough, nausea, vomiting.

In case of ingestion:

Harmful if swallowed. Burns in the mouth, pharynx, oesophagus, and gastrointestinal tract.

Other symptoms: Danger of stomach perforation. Abdominal pain, nausea, sore throat, vomiting, thirst and coma.

After contact with skin: Harmful in contact with skin.

Burns, causes poorly healing wounds.

After eye contact: Redness, pain, Danger of loss of sight.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media:

Water fog, extinguishing powder, foam, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

High power water jet.

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

This material is combustible, but will not ignite readily. Harmful and/or toxic vapours may be produced in the event of thermal decomposition.

In case of fire may be liberated: aldehydes, acids, nitrogen oxides (NO<sub>x</sub>), phenols, carbon monoxide and carbon dioxide. Formation of numerous unknown compounds is possible.

### 5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information:

Hazchem-Code: 2X

Seal off endangered area. Heating causes rise in pressure with risk of bursting. Cool endangered containers with water spray and, if possible, remove from danger zone. Fight fire from a safe distance. Stay upwind/keep distance from source. Use water spray jet to knock down vapours. Do not allow fire water to penetrate into surface or ground water.

## SECTION 6: Accidental release measures

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

Avoid formation of aerosols/vapours. Avoid inhalation and contact with skin and eyes.

Respiratory protection in case of aerosol or vapour formation. Wear protective equipment. Keep away from unprotected people. Ensure adequate ventilation, especially in confined areas.

### 6.2 Environmental precautions

Do not allow to enter into ground-water, surface water or drains. If necessary notify appropriate authorities.

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

Dam spills. Soak up with absorbent materials such as sand, siliceus earth, acid- or universal binder. Store in special closed containers and dispose of according to ordinance. Dispose of waste according to applicable legislation.

Additional information: Special danger of slipping by leaking/spilling product.

### 6.4 Reference to other sections

Refer additionally to section 8 and 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advices on safe handling: Obtain special instructions before use. Provide adequate ventilation, and local exhaust as needed. Execute works under fume hood.  
Avoid contact with skin, eyes, and clothing. Avoid the formation of aerosol. Do not breathe vapour/aerosol/mist. Do not ingest.  
Take care when re-opening already used containers. Handle and open container with care. Wear protective equipment. When using do not eat, drink or smoke.

Precautions against fire and explosion:  
Take standard precautions to prevent fire.

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

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place. Keep away from sources of ignition. Store in a dry place. Do not drop, drag or bang the container.  
Shelf life: 12 months at 22 °C.

Hints on joint storage: Do not store together with strong oxidizing agents, strong Lewis acids, mineral acids or strong bases. Keep away from food and drinks.

Storage class: 8A = Combustible corrosive substances

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
80-05-7	4,4'- Isopropylidenediphenol	Europe: IOELV: TWA	10 mg/m <sup>3</sup>
		Great Britain: WEL-TWA	10 mg/m <sup>3</sup> (inhalable fraction)
		Ireland: 8 hours	10 mg/m <sup>3</sup>

### 8.2 Exposure controls

Provide adequate ventilation, and local exhaust as needed.

### Personal protection equipment

#### Occupational exposure controls

Respiratory protection: If vapours form, use respiratory protection.  
Recommended: Use filter type A (= against vapours of organic substances) according to EN 14387.  
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection:	Protective gloves according to EN 374. Glove material: Nitrile rubber or neoprene. layer thickness (recommended): >0.5 mm. Breakthrough time: not tested. Observe glove manufacturer's instructions concerning penetrability and breakthrough time.
Eye protection:	Tightly sealed goggles according to EN 166.
Body protection:	Wear suitable protective clothing.
General protection and hygiene measures:	Avoid contact with skin, eyes, and clothing. Take off contaminated clothing and wash it before reuse. Do not breathe vapour/aerosol. Work place should be equipped with a shower and an eye rinsing apparatus. When using do not eat, drink or smoke. Wash hands before breaks and after work.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid Colour: amber
Odour:	amine-like
Odour threshold:	no data available
pH value:	alkaline
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	no data available
Flash point/flash point range:	> 93 °C
Evaporation rate:	no data available
Flammability:	This material is combustible, but will not ignite readily.
Explosive properties:	no data available
Explosion limits:	no data available
Vapour pressure:	negligible
Vapour density:	no data available
Density:	8.2 g/mL
Solubility:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Viscosity, dynamic:	no data available
Explosive properties:	no data available
Oxidizing characteristics:	no data available

### 9.2 Other information

Additional information:	no data available
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

May be corrosive to metals.

### 10.2 Chemical stability

Stable under recommended storage conditions.

Shelf life: 12 months at 22 °C.



### 10.3 Possibility of hazardous reactions

Exothermic reactions with incompatible materials.

### 10.4 Conditions to avoid

Protect from excessive heat. Avoid open flames. Avoid formation of aerosols/vapours.

### 10.5 Incompatible materials

Nitrous acid, Sodium hypochlorite, peroxides, strong oxidizing agents, strong Lewis acids or mineral acids and strong bases (organic and inorganic).

### 10.6 Hazardous decomposition products

In case of fire may be liberated: aldehydes, acids, nitrogen oxides (NO<sub>x</sub>), phenols, carbon monoxide and carbon dioxide. Formation of numerous unknown compounds is possible.

Thermal decomposition: no data available

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Toxicological effects:	<p>Acute toxicity (oral): Acute Tox. 4; H302 = Harmful if swallowed. The product has not been tested. The statement is derived from the properties of the single components. ATEmix (calculated): 300&lt;ATE&lt;2000.</p> <p>Acute toxicity (dermal): Acute Tox. 4; H312 = Harmful in contact with skin. The product has not been tested. The statement is derived from the properties of the single components. ATEmix (calculated): 1000&lt;ATE&lt;2000.</p> <p>Acute toxicity (inhalative): Acute Tox. 4; H332 = Harmful if inhaled. The product has not been tested. The statement is derived from the properties of the single components.</p> <p>Skin corrosion/irritation, eye damage/irritation: Skin Corr. 1A; H314 = Causes severe skin burns and eye damage.</p> <p>Sensitisation to the respiratory tract: Lack of data.</p> <p>Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction. The product has not been tested. The statement is derived from the properties of the single components.</p> <p>Germ cell mutagenicity/Genotoxicity: Lack of data.</p> <p>Carcinogenicity: Lack of data.</p> <p>Reproductive toxicity: Repr. 2; H361f = Suspected of damaging fertility. The product has not been tested. The statement is derived from the properties of the single components.</p> <p>Effects on or via lactation: Lack of data.</p> <p>Specific target organ toxicity (single exposure): STOT SE 3; H335 = May cause respiratory irritation. The product has not been tested. The statement is derived from the properties of the single components.</p> <p>Specific target organ toxicity (repeated exposure): STOT RE 2; H373 = May cause damage to organs through prolonged or repeated exposure. The product has not been tested. The statement is derived from the properties of the single components.</p> <p>Information about 4,4'-Methylenebis(cyclohexylamine): NOAEL, Rat, oral: 15 mg/kg bw/d Target organ: liver NOAEC, Rat, inhalative: 12 mg/m<sup>3</sup> Target organ: liver Aspiration hazard: Lack of data.</p>
Other information:	<p>Amines (vapours): May cause damage to liver and kidneys through prolonged or repeated exposure. Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.</p>

**Symptoms**

In case of inhalation:

Harmful if inhaled. The following symptoms may occur: Irritation, sore throat, headache, fatigue, dizziness, cough, nausea, vomiting.

In case of ingestion:

Harmful if swallowed. Burns in the mouth, pharynx, oesophagus, and gastrointestinal tract.

Other symptoms: Danger of stomach perforation. Abdominal pain, nausea, sore throat, vomiting, thirst and coma.

After contact with skin: Harmful in contact with skin.

Burns, causes poorly healing wounds.

After eye contact: Redness, pain, Danger of loss of sight.

**General remarks**

Contains Salicylic acid: Suspected of damaging fertility.

**SECTION 12: Ecological information****12.1 Toxicity**

Aquatic toxicity: Toxic to aquatic life with long lasting effects.

**12.2. Persistence and degradability**

Further details: no data available

**12.3 Bioaccumulative potential**

Partition coefficient: n-octanol/water:  
no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

no data available

**12.6 Other adverse effects**

General information: Do not allow to enter into ground-water, surface water or drains.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product**

Waste key number: 08 04 09\* = Waste adhesives and sealants containing organic solvents or other dangerous substances.

MFSU = manufacture, formulation, supply and use

\* = Evidence for disposal must be provided.

Recommendation: Incinerate as hazardous waste according to applicable local, state, and federal regulations.

**Contaminated packaging**

Recommendation: Dispose of waste according to applicable legislation. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled. Do not remove label until container is thoroughly cleaned.

**SECTION 14: Transport information****14.1 UN number**

ADR/RID, IMDG, IATA: 2735

**14.2 UN proper shipping name**ADR/RID, IMDG, IATA: UN 2735, AMINES, LIQUID, CORROSIVE, N.O.S.  
(4,4'-Methylenebis(cyclohexylamine), Cyclohex-1,2-ylenediamine, triethylentetramine)**14.3 Transport hazard class(es)**

ADR/RID: Class 8, Code: C7

IMDG: Class 8, Subrisk -

IATA: Class 8

**14.4 Packing group**

ADR/RID, IMDG, IATA: II

**14.5 Environmental hazards**

Marine pollutant: Yes

**14.6 Special precautions for user****Land transport (ADR/RID)**

Warning board:	ADR/RID: Kemmler-number 80, UN number 2735
Hazard label:	8
Special provisions:	274
Limited quantities:	1 L
EQ:	E2
Contaminated packaging - Instructions:	P001 IBC02
Special provisions for packing together:	MP15
Portable tanks - Instructions:	T11
Portable tanks - Special provisions:	TP1 TP27
Tank coding:	L4BN
Tunnel restriction code:	E

**Sea transport (IMDG)**

EmS:	F-A, S-B
Special provisions:	274
Limited quantities:	1 L
EQ:	E2
Contaminated packaging - Instructions:	P001
Contaminated packaging - Provisions:	-
IBC - Instructions:	IBC02
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T11
Tank instructions - Provisions:	TP1, TP27
Stowage and segregation:	Category A. "Separated from" acids.
Properties and observations:	Colourless to yellowish liquids or solutions with a pungent odour. Miscible with or soluble in water. When involved in a fire, evolve toxic gases. Corrosive to most metals, especially to copper and its alloys. React violently with acids. Cause burns to skin, eyes and mucous membranes.
Segregation group:	18

**Air transport (IATA)**

Hazard:	Corrosive
EQ:	E2
Passenger Ltd.Qty.:	Pack.Instr. Y840 - Max. Net Qty/Pkg. 0.5 L
Passenger:	Pack.Instr. 851 - Max. Net Qty/Pkg. 1 L
Cargo:	Pack.Instr. 855 - Max. Net Qty/Pkg. 30 L
Special Provisioning:	A3 A803
ERG:	8L

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

no data available

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations - Great Britain**

Hazchem-Code: 2X

**National regulations - EC member states****Labelling of packaging with <= 125mL content**

R phrase(s):	R 20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
	R 35	Causes severe burns.
	R 43	May cause sensitisation by skin contact.
	R 48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
	R 51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S phrase(s):	S 53	Avoid exposure - obtain special instructions before use.
	S 1	Keep locked up.
	S 24/25	Avoid contact with skin and eyes.
	S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S 28	After contact with skin, wash immediately with soap and plenty of water.
	S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S 61	Avoid release to the environment. Refer to special instructions/Safety data sheets.

**15.2 Chemical Safety Assessment**

For this mixture a chemical safety assessment is not required.

## SECTION 16: Other information

### Further information

Wording of the H-phrases under paragraph 2 and 3:

- H302 = Harmful if swallowed.
- H312 = Harmful in contact with skin.
- H314 = Causes severe skin burns and eye damage.
- H317 = May cause an allergic skin reaction.
- H318 = Causes serious eye damage.
- H332 = Harmful if inhaled.
- H335 = May cause respiratory irritation.
- H361f = Suspected of damaging fertility.
- H373 = May cause damage to organs through prolonged or repeated exposure.
- H411 = Toxic to aquatic life with long lasting effects.
- H412 = Harmful to aquatic life with long lasting effects.

Wording of the R-phrases under section 2 and 3:

- R 20/21/22 = Harmful by inhalation, in contact with skin and if swallowed.
- R 21 = Harmful in contact with skin.
- R 21/22 = Harmful in contact with skin and if swallowed.
- R 22 = Harmful if swallowed.
- R 34 = Causes burns.
- R 35 = Causes severe burns.
- R 37 = Irritating to respiratory system.
- R 41 = Risk of serious damage to eyes.
- R 43 = May cause sensitisation by skin contact.
- R 48/22 = Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R 51/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R 52 = Harmful to aquatic organisms.
- R 52/53 = Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R 62 = Possible risk of impaired fertility.

Reason of change: Changes in section 2: classification, labelling  
Changes in section 3: information on ingredients  
Changes in section 4-13: General revision  
Changes in section 14: Transport information  
Changes in section 15-16: General revision

### Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

This data sheet cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, and which additional precautions may be necessary. All health and safety information contained in this data sheet should be provided to your employees and customers. It is your responsibility to develop appropriate workplace instructions and training programmes for employees.

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