

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

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

· **1.1 Product identifier**

· **Trade name: 4-methylmorpholine**

· **Article number: 1331**

· **CAS Number:**

109-02-4

· **EC number:**

203-640-0

· **Registration number 01-2119969273-30-XXXX**

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

Only for the use of professionals users

· **Application of the substance / the mixture**

Chemical for research, development, manufacturing, laboratory chemical for analysis.

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Biosolve Chimie

20 Rue Roger Husson, 57260 Dieuze, France

Tel: +33 3 878 675 80/81/82/83/84/85

Email: info@biosolvechimie.com

Biosolve B.V.

Leenderweg 78, 5555 CE Valkenswaard, the Netherlands.

Tel: +31-(0)40-2071300

Fax: +31-(0)40-2048537

Email: info@biosolve-chemicals.com

· **Further information obtainable from:** Product safety department.

· **1.4 Emergency telephone number:**

Contact list of appointed bodies for information relating to emergency health response, according to Art. 45(1) Reg. (EC) No 1272/2008.

See below section 16 or at <https://poisoncentres.echa.europa.eu/home>.

Help desk: <http://echa.europa.eu/web/guest/support/helpdesks/national-helpdesks/list-of-national-helpdesks>).

Data from: ECHA - EUROPEAN CHEMICALS AGENCY

For more information see section 16.

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

(Contd. on page 2)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 1)



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS02



GHS05



GHS07

· **Signal word** Danger

· **Hazard statements**

H225 Highly flammable liquid and vapour.

H302+H312 Harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

· **Precautionary statements**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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.

P362+P364 Take off contaminated clothing and wash it before reuse.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**

· **CAS No. Description**

CAS: 109-02-4 4-methylmorpholine

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 2)

- **Identification number(s)**
- **EC number: 203-640-0**

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Call for a doctor immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

See Section 13 for disposal information.

(Contd. of page 3)

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see section 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Respiratory protection:** Not required.
- **Hand protection**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 4)

- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye/face protection**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Physical state** Fluid
- **Colour:** Colourless
- **Odour:** Characteristic
- **Odour threshold:** No data available.
- **Melting point/freezing point:** -65.9 °C
- **Boiling point or initial boiling point and boiling range** 115.3 °C
- **Flammability** Highly flammable.
- **Lower and upper explosion limit**
- **Lower:** 2 Vol %
- **Upper:** 10.6 Vol %
- **Flash point:** 12 °C
- **Auto-ignition temperature:** 190 °C
- **Decomposition temperature:** No data available
- **pH** 10.5
- **Viscosity:**
- **Dynamic:** Not determined.
- **Solubility**
- **water:** Fully miscible.
- **Partition coefficient n-octanol/water (log value)** No data available
- **Vapour pressure at 20 °C:** 14.6 hPa
- **Density and/or relative density**
- **Density at 20 °C:** 0.92 g/cm³
- **Relative density** No data available
- **Vapour density** No data available

- **9.2 Other information**
- **Appearance:**
- **Form:** Liquid
- **Important information on protection of health and environment, and on safety.**
- **Ignition temperature:** No data available

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 5)

· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Molecular weight	101.15 g/mol
· Change in condition	
· Evaporation rate	No data available
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Highly flammable liquid and vapour.
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Harmful if swallowed or in contact with skin.

· LD/LC50 values relevant for classification:

Oral	LD50	1,960 mg/kg (rat)
Dermal	LD50	1,242 mg/kg (rabbit)

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 6)

- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

HP3	Flammable
HP6	Acute Toxicity
HP8	Corrosive

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 7)

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA**

UN2535

· **14.2 UN proper shipping name**
· **ADR**

UN 2 5 3 5 4 - M E T H Y L M O R P H O L I N E (N - M E T H Y L M O R P H O L I N E)

· **IMDG, IATA**

4 - M E T H Y L M O R P H O L I N E (N - M E T H Y L M O R P H O L I N E)

· **14.3 Transport hazard class(es)**

· **ADR**



· **Class**

3 (FC) Flammable liquids.

· **Label**

3+8

· **IMDG**



· **Class**

3 Flammable liquids.

· **Label**

3/8

· **IATA**



· **Class**

3 Flammable liquids.

· **Label**

3 (8)

· **14.4 Packing group**

· **ADR, IMDG, IATA**

II

· **14.5 Environmental hazards:**

· **Marine pollutant:**

No

· **14.6 Special precautions for user**

Warning: Flammable liquids.

· **Hazard identification number (Kemler code):**

338

· **EMS Number:**

F-E,S-C

(Contd. on page 9)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 8)

· Stowage Category	<i>B</i>
· Stowage Code	<i>SW2 Clear of living quarters.</i>
· 14.7 Maritime transport in bulk according to IMO instruments	<i>Not applicable.</i>
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	<i>1L</i>
· Excepted quantities (EQ)	<i>Code: E2</i> <i>Maximum net quantity per inner packaging: 30 ml</i> <i>Maximum net quantity per outer packaging: 500 ml</i>
· Transport category	<i>2</i>
· Tunnel restriction code	<i>D/E</i>
· IMDG	
· Limited quantities (LQ)	<i>1L</i>
· Excepted quantities (EQ)	<i>Code: E2</i> <i>Maximum net quantity per inner packaging: 30 ml</i> <i>Maximum net quantity per outer packaging: 500 ml</i>

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category P5c FLAMMABLE LIQUIDS**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
Substance is not listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
- **Regulation (EC) No 273/2004 on drug precursors** Substance is not listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
Substance is not listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 9)

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Product safety department

· **Contact:**

Austria German Vergiftungsinformationszentrale 01 406 43 43 <http://www.goeg.at/de/VIZ>

Belgium French Centre antipoison 070 245 245 <http://www.centreantipoisons.be>

Dutch Antigif centrum 070 245 245 <http://www.antigifcentrum.be>

German Giftinformationszentrum 070 245 245 <http://www.poisoncentre.be>

Bulgaria* Bulgarian Токсикологични центрове 02 9154 411 <https://pirogov.eu/bg>

Croatia* Croatian Centar za kontrolu otrovanja +385 1 2348 342 <https://www.imi.hr/en/jedinica/poison-control-centre>

Czech Rep Czech Toxikologické informační středisko +420 224 91 92 93; +420 224 91 54 02 <http://www.tis-cz.cz>

Denmark Danish Giftlinien +45 8212 1212 <https://www.bispebjerghospital.dk/giftlinien>

Estonia Estonian Mürgistusteabekeskus 16662; +372 7943 794 <https://www.16662.ee>

Finland Finnish Myrkytystietokeskus 0800 147 111; +358 9 471 977 <http://www.hus.fi/sairaanhoito/sairaanhoitopalvelut/myrkytystietokeskus/Sivut/default.aspx>

France French Angers +33 2 41 48 21 21 <http://www.centres-antipoison.net/angers/index.html>

Bordeaux +33 5 56 96 40 80 <http://www.centres-antipoison.net/bordeaux/index.html>

Lille +33 0800 59 59 59 <http://www.centres-antipoison.net/lille/index.html>

Lyon +33 4 72 11 69 11 <http://www.centres-antipoison.net/lyon/index.html>

Marseille +33 4 91 75 25 25 <http://www.centres-antipoison.net/marseille/index.html>

Nancy +33 3 83 22 50 50 <http://www.centres-antipoison.net/nancy/index.html>

Paris +33 1 40 05 48 48 <http://www.centres-antipoison.net/paris/index.html>

Strasbourg +33 3 88 37 37 37 <http://www.centres-antipoison.net/strasbourg/index.html>

Toulouse +33 5 61 77 74 47 <http://www.centres-antipoison.net/toulouse/index.html>

Germany German Berlin +49 30 19240 <https://giftnotruf.charite.de>

Bonn +49 228 19240 <http://www.gizbonn.de/index.php?id=272>

Erfurt +49 361 730730 <https://www.ggiz-erfurt.de/home.html>

Freiburg +49 761 19240 <https://www.uniklinik-freiburg.de/giftberatung.html>

Göttingen +49 551 19240 <https://www.giz-nord.de/cms/index.php>

Homburg/Saar +49 6841 19240 http://www.uniklinikumsaarland.de/de/einrichtungen/kliniken_institute/kinder_und_jugendmedizin/informations_und_behandlungszentrum_fuer_vergiftungen_des_saarlandes

Mainz +49 6131 19240 <http://www.giftinfo.uni-mainz.de/index.php?id=24807>

München +49 89 19240 <http://www.toxinfo.med.tum.de>

Greece Greek κέντρο δηλητηριάσεων +30 213 200 9000 <http://www.aglaiakyriakou.gr/>; <http://0317.syzefxis.gov.gr>

Hungary Hungarian Egészségügyi Toxikológiai Tájékoztató Szolgálat +36 6 80 20 11 99; +36 06 1 476 6464 <http://www.okbi.hu/page.php?trid=1&dz=103>

Italy Italian Bergamo +39 800 88 33 00 http://www.asst-pg23.it/section/259/Tossicologia_-_Centro_antiveneni

Firenze +39 55 794 78 19 <http://www.antiveneni.altervista.org>

Milano +39 2 661 01 029 <http://www.centroantiveneni.org>

Pavia +39 382 244 44 <http://www-3.unipv.it/reumatologia-tossicologia/cav>

Napoli +39 81 747 28 70

(Contd. on page 11)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 10)

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Roma +39 6 685 93 726 / +39 6 499 78 000 / +39 6 305 43 43 <http://www.corso-primi-soccorso-roma.it/centri%20antiveleno-lazio.html>Ireland English Poisons information Centre of Ireland +353 1 809 21 66 <http://www.poisons.ie/Public>Latvia* Latvian Saindēšanās informācijas centri +371 670 00 610 <https://www.aslimnica.lv/lv>Russian Латвия +371 67000610 <https://www.aslimnica.lv/lv>Lithuania Lithuanian Apsinuodijimų informacijos biuras + 370 5 236 20 52 <http://www.apsinuodijau.lt>Luxembourg German Giftinformationszentrum +49 800 255 00 <http://www.poisoncentre.be>French Centre antipoison +352 800 255 00 <http://www.centreatipoisons.be>Netherlands Dutch 31 (0)88 755 8 <https://www.productnotificatie.nl>Norway Norwegian Giftinformasjonen +47 22 59 13 00 <https://helsenorge.no/Giftinformasjon>Poland Polish Kraków +48 12 411 99 99 <http://www.oit.cm.uj.edu.pl>Gdansk +48 58 682 04 04 <http://www.pctox.pl/news.php>Poznań +48 61 847 69 46 <http://www.raszeja.poznan.pl/oddzialy/oddzial%20toksykologiczny>Warszawa +48 607 218 174 okzit@burdpi.pol.plPortugal Portuguese Centro de Informação Antivenenos +351 808 250 143 <http://www.inem.pt>Romania Romanian CNMRMC +40 213 183 606 infotox@insp.gov.roSpitalul Clinic de Urgenta Bucuresti +40 215 992 300 int. 291
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<http://rosпотреbnadzor.ru>Serbia Serbian Nacionalni centar za kontrolu trovanja +381 11 3608 440 <http://www.vma.mod.gov.rs/sr-lat/specijalnosti/centri/nacionalni-centar-za-kontrolu-trovanja>Slovak Rep Slovak Národné toxikologické informačné centrum +421 2 5477 4166 <http://www.ntic.sk>Spain Spanish Servicio de Información Toxicológica +34 91 562 04 20 https://www.administraciondejusticia.gob.es/paj/pub%20lico/ciudadano/informacion_institucional/organismos/instituto_nacional_de_toxicologia_y_ciencias_fo%20renses/servicios/info_toxicologica/que_es_sit%20lut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3g_AIcjCyd%20DRwMDUwNLA08nzwAvM0czA_8gM6B8pFm8mae%20rqWdQsImJcaLiYgncViYa4CHR4GBiQEXug1wAEd%20CusNBrSwpwsLUACKPy3WuRvjlg83wy5sQ0G8C%20tR-P__w88nNT9QtYQyMMMMj0zA9IVFQH Y 1 8 l 4 / d l 3 / d 3 / L2dJQSEvUUt3QS9ZQnZ3LzZftjBFMjhCMUEwMDUwOT%20BJQjFWSjZBNjBPTjA!/?itemId=45381Sweden Swedish Giftinformationscentralen +46 10 456 6700 <https://giftinformation.se>Switzerland German Giftinformationszentrum 145 <http://toxinfo.ch>French Centre antipoison 145 <http://toxinfo.ch>Italian Centro Antiveneni 145 <http://toxinfo.ch>United Kingdom English NHS Helpline 111 NHS Helpline - England and Wales: <http://www.nhs.uk/NHSEngland/AboutNHSservices/Emergencyandurgentcareservices/Pages/NHS-111.aspx>· **Date of previous version:** 19.10.2022· **Version number of previous version:** 6· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

(Contd. on page 12)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.01.2024

Version number 7 (replaces version 6)

Revision: 24.01.2024

Trade name: 4-methylmorpholine

(Contd. of page 11)

IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B

· *** Data compared to the previous version altered.**

EU