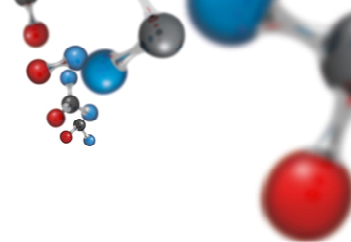


MATERIAL SAFETY DATA SHEET

DIMETHYLAMINOETHOXYETHANOL



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

1.1. Product identifier

Chemical name: **2-[2-(dimethylamino)ethoxy]ethanol**
Registration number: **01-2119976346-26-0004**
Index number: **–**
EC number (EINECS): **216-940-1**
CAS number: **1704-62-7**
Other names: **Dimethylaminoethoxyethanol**

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

Uses: **It is used mainly as a catalyst for polyurethane systems.**

Uses advised against: **other than industrial**

1.3 Details of the supplier of the safety data sheet

Name: **BorsodChem MCHZ, s.r.o.**
Name or business name: **BorsodChem MCHZ, s.r.o.**
Place of business or registered office: **Chemická 2039/1, 709 00 Ostrava – Mariánské Hory, Czech Republic**
Identification number: **26019388**
Telephone: **+420 596 641 111**
Fax: **+420 596 642 040**
E-mail address of a competent person responsible for this MSDS: **zsvobodova@bc-mchz.cz**

1.4. Emergency telephone number

Company telephone number: **+420 596 643 221 or 596 620 794 - 24 hrs/day**
24-hours emergency contact CHEMTREC: 001-703-527-3887, company code CCN 206 072
The National Poisons Information Service (NPIS), City Hospital, Birmingham, B18 7QH, UK
Tel: +44 121 507 4123, fax: +44 121 507 5580, e-mail: allistervale@npis.org, www.npis.org
National Capital Poison Center, 3201 New Mexico Ave, Suite 310 Washington, DC 20016
Emergency Line: 1-800-222-1222, fax: 202-362-8377, e-mail: pc@poison.org, www.poison.org

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

In compliance with Regulation (EC) No. 1272/2008:

Acute Tox. 4; H312 Harmful in contact with skin.

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

Eye Dam. 1; H318 Causes serious eye damage.

The most serious adverse effects on human health when using the substance/preparation:
Harmful if swallowed. Causes severe skin burns and eye damage.

The most serious adverse effects on the environment when using the substance/preparation:
Not specified.

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DIMETHYLAMINOETHOXYETHANOL

2.2. Label elements

In compliance with Regulation (EC) No. 1272/2008:

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DIMETHYLAMINOETHOXYETHANOL

Hazard pictograms:



Signal word: DANGER

Hazard statements:

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

Precautionary statements:

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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

2.3 Other hazards

The substance is not listed as persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) in compliance with Annex XIII of Regulation (EC) No 1907/2006.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	2-[2-(dimethylamino)ethoxy]ethanol
Index number	—
EC number	216-940-1
CAS number	1704-62-7
Content of substance (in % wt.)	99.0
Synonyms	Dimethylaminoethoxyethanol

CMR impurities < 0.1 % wt.

3.2. Mixtures

It is a chemical substance.

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SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: **Quickly, and with regard to your own safety, move the affected person to fresh air, prevent him/her from walking!** Depending on the situation, flushing oral or nasal cavity with water can be recommended. Change clothes of the affected person if contaminated with the substance, and protect the affected person against cold. Provide breathing support. Call for medical assistance!

If on skin: **Immediately take off the contaminated clothing; take off rings, watches, bracelets before or during washing if they are in the area of contact with skin. Wash contaminated areas with a stream of tepid water, if possible, for 10 to 30 minutes; do not use a brush or soap, do not neutralize!** Cover the burnt parts of skin with a sterile bandage, do not use any ointments or medications for skin. Cover the affected person to prevent them from cold. Depending on the situation, call an emergency service, or ensure medical treatment.

If in eyes: **Immediately flush with running water, hold the eyelids open (even with force); immediately remove contact lenses if present. Never perform neutralization!** Flush for 10–30 minutes from the inner corner to the outer to avoid contact with the other eye. Ensure earliest possible medical (preferably professional) treatment; all affected persons, regardless of the severity, must be sent for examination.

If swallowed: **DO NOT INDUCE VOMITING** – danger of further damage to the alimentary canal!!!

IMMEDIATELY FLUSH ORAL CAVITY WITH WATER AND LET DRINK 2-5 dl of cold water to reduce the heat effect of the corrosive substance (due to almost immediate effect on the mucous membranes, it is more suitable to quickly let the affected person drink tap water than waste time by obtaining cold liquids – with every minute of delay, the condition of mucous membranes deteriorates irreversibly! Soda waters or mineral waters which may release carbon dioxide are not suitable. It is not suitable to use larger amount of liquid, as it may induce vomiting and possibly inhalation of caustic substances into the lungs. Do not force the affected person to drink, especially when he or she already feels pain in mouth or throat. In this case only let the affected person rinse their oral cavity with water. DO NOT ADMINISTER ACTIVATED CHARCOAL! (blackening makes examination of the condition of the alimentary canal mucosa more difficult and does not have a positive effect with acids and bases.) Do not administer any food. Do not administer anything orally if the affected person is unconscious or having convulsions. Seek medical attention as fast as possible!

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the classification (see Section 2) and/or Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment – caustic substance. Treat according to symptoms (decontamination, vital functions). No specific antidote known. Pulmonary oedema prophylaxis. Medical monitoring at least for a period of 24 hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: **Foam, carbon dioxide, dry powder, water mist**

Unsuitable extinguishing media: **Not specified.**

5.2. Special hazards arising from the substance or mixture **Dangers for firefighters – no particular dangers are known.**

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5.3. Advice for firefighters: **Self-contained breathing apparatus, full fire-fighting turnout gear.**

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures: **Protection of exposed parts of the body, eye protection. Ensured ventilation. Do not touch spilled material.**

6.2. Environmental precautions: **Prevent entry into sewers and water courses.**

6.3. Methods and material for containment and cleaning up:

Small amounts – soak spilled material with absorbent. Put residues in a suitable, covered, properly labelled waste container. Wash the contaminated area.

Large amounts – soak the liquid with absorbent and surround the area by digging trenches or building dams. Dispose in a suitable, covered, properly labelled waste container. Clean contaminated areas with water or water-dilutable cleaning agents. For more information, see Section 13.

6.4. Reference to other sections: **see Sections 10 and 13.**

SECTION 7: Handling and storage

7.1. Precautions for safe handling: **It is supplied in steel barrels, IBC containers and tank trucks. Avoid contact with eyes, skin and clothes when handling the liquid and thoroughly wash yourself afterwards; avoid inhaling vapours. Avoid contact with heat, sparks, naked fire and static discharge.**

7.2. Conditions for safe storage, including any incompatibilities: **Store in original closed containers in cool, dry and well ventilated areas away from oxidizing agents. Do not store together with foodstuffs.**

7.3. Specific end use(s): **Industrial use only.**

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Czech Republic: not specified

Member States (2000/39/EC): not specified

8.1.1 DNEL (Derived No Effect Level) for worker exposure:

Long-term exposure (systemic effects) – inhalation:	0.48 mg/m³
Long-term exposure (systemic effects) – dermal:	2.33 mg/kg of weight/day
Long-term exposure (local effects) – inhalation:	1.07 mg/m³
Long-term exposure (local effects) – dermal:	not specified

8.2. Exposure controls

Use in a closed circuit, provide vapour extraction, use personal protective equipment.

Technical measures: **Ventilation. Laboratory samples may only be handled in a fume hood. Provide mechanical ventilation of confined spaces.**

Respiratory protection: **if necessary, use a respirator or mask with an ABEK filter.**

Hand protection: **protective gloves (PVC nitrile)**

Eye protection: **protective goggles or shield (e.g. type EN 397)**

Skin protection: **protective chemically resistant clothing, rubber boots**

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Other information: **Do not eat, drink or smoke at work. After work, wash your hands with warm water and soap, treat skin with suitable repair cream.**

Environmental exposure controls:

Use in closed circuit, off-gases burned in gas flare or cleaned by adsorption (activated charcoal), waste water is treated by biological treatment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	liquid
Odour:	amine
Odour threshold:	not specified with regard to possible health hazard when inhaled
pH:	11.5
Melting point/freezing point (at 1,013 hPa in °C):	< -20
Initial boiling point (at 1,013 hPa in °C):	203.5
Flash point (at 1,013 hPa in °C):	90
Flammability (solid, gas):	flammable liquid
Lower explosive limits (% vol., 80 °C, 9 hPa):	0.9
Upper explosive limits (% vol.):	irrelevant for liquids for classification and labelling
Vapour pressure (hPa at 20 °C):	0.11
Relative density at 20 °C:	0.95
Solubility in water (in g/l at 20 °C):	miscible
Partition coefficient: n-octanol/water (log p _{ow} at pH 5-9):	-0.778
Auto-ignition temperature (at 1013 hPa and °C):	205
Viscosity – dynamic (mPa.s, 25 °C):	10
Explosive properties:	none
Oxidising properties:	none

9.2. Other information:

Viscosity – kinematic (mm ² /s, 20 °C):	11.7
Viscosity – kinematic (mm ² /s, 40 °C):	4.6
Dissociation constant (at 25 °C, concentration of 0.01 M):	9.3

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SECTION 10: Stability and reactivity

- 10.1. Reactivity: **No caustic effect on metals.**
- 10.2. Chemical stability: **The product is stable if stored and handled according to guidelines/instructions.**
- 10.3. Possibility of hazardous reactions: **Reacts violently with acids and acid chlorides, oxidising agents and halogen compounds. The course of reaction is exothermic.**
- 10.4 Conditions to avoid: **Avoid extreme temperatures.**
- 10.5 Incompatible materials: **Acids, isocyanates, oxidising agents, and acid chlorides.**
- 10.6 Hazardous decomposition products **Nitrogen and carbon oxides.**

SECTION 11: Toxicological information

Information on toxicological effects:

Acute toxicity assessment: low toxicity after single exposure administration. Inhaling highly enriched/saturated vapours in a mixture with air represents an unlikely acute danger. Slightly toxic after short-term contact with skin.

11.1 Acute toxicity:

- LD₅₀ (oral, rat) = > **2,150** - < **3,830 mg.kg⁻¹** (OECD Guideline 401)
- LC₅₀ (inhalation, rat) = > **8.7 mg.l⁻¹ /8 h** (Read-across)
- LD₅₀ (dermal, rabbit – male) = **1,260 mg.kg⁻¹** (OECD Guideline 402, Read-across)

Other acute effect assessment:

STOT – single exposure: **Based on available information, there is no specific target organ toxicity after single exposure.**

11.2 Irritation **Corrosive 1C, skin and eye damage**

Skin

Type: **rabbit**

Result: **Corrosive** (method – OECD Guideline 404)

Eye

Type: **rabbit**

Result: **Risk of serious damage to eyes** (method – OECD Guideline 405)

11.3 Sensitisation

Assessment of sensitisation: Skin sensitising effects were not observed in animal studies. The product was not tested. The information was derived from substances/products with a similar structure and composition (Read-across).

Type: **guinea pig**

Result: **not sensitive** (method – OECD Guideline 406)

11.4 Mutagenicity (in vitro and in vivo studies): **The substance was not mutagenic for bacteria. The substance was not mutagenic in mammal cell culture. The substance was not mutagenic in mammal test. The substance was not fully tested. These statements were partially derived from substances with a similar structure and composition (Read-across).**

11.5 Carcinogenicity: **There are no data regarding the carcinogenic effects. The substance may form nitrosamines under certain conditions. Nitrosamines a carcinogenic in studies on animals.**

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11.6 Reproductive toxicity: Results of studies on animals have not proven fertility worsening. The substance was not tested. The information was derived from substances/products with a similar structure and composition (Read-across). Results were determined in a screening test (OECD 421/422).

11.7. Specific target organ toxicity – single exposure: **not specified**

11.8 Specific target organ toxicity – repeated exposure **It was observed after repeated administration to animals. After repeated exposure – significant local irritation effect. The product was not tested. The information was derived from substances/products with a similar structure and composition (Read-across).**

1.9 Aspiration hazard: **No aspiration hazard expected**

SECTION 12: Ecological information

12.1 Toxicity

12.1.1 Aquatic organisms

Acute for fish

Leuciscus Idus: **LC₅₀ (96 h) = 320 mg.l⁻¹**

Long-term for fish **NOEC (96 h) = 215 mg.l⁻¹**

Acute for invertebrates

Daphnia magna: **EC₅₀ (48 h) > 100 mg.l⁻¹**

Long-term for invertebrates

Daphnia magna: **NOEC (48 h) = 32 mg.l⁻¹**

LOAEC (48 h) = 56 mg.l⁻¹

Effective concentration for algae

Pseudokirchneriella Subcapitata: **EC₅₀ (72 h) = 160 mg.l⁻¹**

Long-term for algae

EC50 (growth rate) = 160 mg.l⁻¹

EC50 (yield) = 73 mg.l⁻¹

NOEC (growth rate) = 40 mg.l⁻¹

NOEC (yield) = 40 mg.l⁻¹

LOEC (growth rate) = 80 mg.l⁻¹

LOEC (yield) = 80 mg.l⁻¹

12.1.2 Toxicity on sediments

NOEC (> 3 h) = 1,000 mg.kg⁻¹ of sediment

12.1.3 PNEC (Predicated No Effect Concentration)

PNEC water (surface): **0.1 mg.l⁻¹**

PNEC water (sea): **0.01 mg.l⁻¹**

PNEC sediment: **0.087 mg.kg⁻¹ of weight of dry sediment**

PNEC sewage treatment plant: **100 mg.l⁻¹**

PNEC soil: **0.028 mg.kg⁻¹ of weight of dry soil**

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PNEC plants: **not specified**
PNEC oral: **not specified**

12.2 Persistence and degradability
Assessment: 10 – 20% in 28 days

12.3 Bioaccumulative potential:
Baes on Pow < 3, is not a substance with high bioaccumulative potential.

12.4 Mobility in soil: **An environmental impact was assessed using a fungacity model of level III, anchored in EPI (evaluated programme interface) of Suite TM, which was provided by U.S. EPA. This model presumes a condition of a stabilised condition between the total input and output. This level III model does not require a balance between the defined media. The information provided should give a user an overall estimate of the environmental impact of this product under the defined model conditions. When released to the environment, the product is expected to spread in air, water and soil/sediment approximately in the following per cents:**

Air	Water	Soil/sediment
< 5%	70 – 90%	10 – 30%

The proportion in water is expected to be diluted or dispersed.

Stability: **soluble in water**

Adsorption: **log Koc = - 0.3116**

12.5 Results of PBT and vPvB assessment: **not listed**

12.6. Other adverse effects: **not specified**

SECTION 13: Disposal considerations

13.1. Waste treatment methods **Disposal at a hazardous waste incineration plant in compliance with the Waste Act under catalogue number 160305.**

Contaminated packaging disposal methods: **Contaminated barrels and containers are recommended to be disposed of at a hazardous waste incineration plant in compliance with the Waste Act under catalogue number 150110.**

SECTION 14: Transport information

Land transport (ADR/RID)
Sea transport (IMDG)
Air transport (ICAO/IATA)

14.1 UN number:	2735
14.2 UN proper shipping name:	LIQUID AMINES, CORROSIVE, N.O.S. 2-[2-(dimethylamino)ethoxy]ethanol
14.3. Transport hazard class(es):	8, C7
Hazard identification number (Kemler code):	80

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14.4. Packing group:	II
14.5. Environmental hazards:	no
Substance polluting the sea:	no
14.6. Special precautions for user:	classified in "Segregation Groups – 18 Alkalis"
EMS:	F-A, S-B
14.7 Bulk transport according to Annex II of the MARPOL and the IBC Code	irrelevant

SECTION 15: Regulatory information

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

15.1.1. EU regulations concerning safety, health and environmental specific for the substance or mixture, as amended:

- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006;
- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC;
- Directive 98/2008/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives;
- Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances.

15.1.2. Regulations valid in the Czech Republic concerning safety, health and environmental specific for the substance or mixture, as amended:

- Act No. 350/2011 Coll., on chemical substances and chemical mixtures and on changes to some Acts;
- ME Decree No. 93/2016 Coll., establishing the Catalogue of Wastes;
- Government Regulation No. 361/2007 Coll. laying down conditions for occupational health protection.

15.2 Chemical safety assessment

Chemical safety assessment is part of the chemical safety report for dimethylaminoethoxyethanol - the overview of risk management measures is provided in Annex 1.

Detailed information on exposure scenarios will be contained in Annex 2 available at the customer's request.

SECTION 16: Other information

16.1. This material safety data sheet supersedes all previous issues.

16.2. List of abbreviations

MATERIAL SAFETY DATA SHEET

DIMETHYLAMINOETHOXYETHANOL

Carc.:	Carcinogenicity
CAS:	Chemical Abstracts Service
CLP:	Classification, labelling, packaging
CSR:	Chemical Safety Report
DNEL:	Derived no-effect level
ES:	Exposure scenario
EC:	European Commission
EC ₅₀ :	Half maximal effective concentration EC ₅₀ – is used in toxicity testing. Half maximal effective concentration EC ₅₀ represents a concentration of the tested substance resulting in 50% decrease or 50% reduction of growth or growth speed in relation to a control sample.
EINECS:	European Inventory of Existing Commercial Chemical Substances
ELINCS:	European list of notified chemical substances
Irrit.:	irritant
LC ₅₀ :	Lethal concentration, 50 % (of lethal concentration) is used in testing toxicity
LD ₅₀ :	Absolute lethal dose – resulting in the decease of 50% of subjects
LOAEC:	Lowest observable adverse effect concentration
NOAEC:	No observed adverse effect concentration
NOEC:	No observed effect concentration
NOEL:	No observed effect level
NOAEL:	No observed adverse effect level
OECD:	Organisation for Economic Co-operation and Development
PBT:	Persistent, bioaccumulative and toxic
PNEC:	Predicted no-effect concentration
REACH:	Registration, evaluation, authorisation and restriction of chemicals
Sens.:	sensitivity
STOT:	specific target organ toxicity
STOT SE:	Specific target organ toxicity – single exposure
STOT RE:	Specific target organ toxicity – repeated exposure
STP:	Sewage treatment plant
SU:	sector of use
Tox.:	Toxicity
vPvB:	Very persistent and very bioaccumulative substances

16.3. List of the phrases used:

Hazard statements:

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

Precautionary statements:

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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

16.4. Sources

Data published by ECHA.

Registration documentation as of 04/2018.

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16.5. Revision history

Issue	Date	Changes
1.0	22/08/2016	Preparation of the MSDS according to European Parliament and Council Regulation (EC) No. 1907/2006
2.0	11/06/2018	Update of the MSDS according to the registration documentation.

Prepared by: IT & QEHS – Ing. Zuzana Svobodová

Approved by: Prepared by: IT & QEHS Manager – Ing. Stanislav Pekara, MBA

Version: English
Date: 11/06/2018
Material safety data sheet
Dimethylaminoethoxyethanol

www.borsodchem-cz.com

The data provided by this MSDS represent the current state of knowledge and experience and are in accordance with the laws of the Czech Republic. Compliance with the national legislation in force at the point of use is the responsibility of the purchaser.

Produced by:

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MATERIAL SAFETY DATA SHEET

DIMETHYLAMINOETHOXYETHANOL

Annex No. 1

SUMMARY OF EXPOSURE SCENARIOS

Exposure scenario no.	Volume (t/y)	Production	Identified uses			Life cycle stage		Sectors of Use (SU)	Chemical Products (PC)	Process category (PROC)	Environmental release category (ERC)	Articles (AC)
			Formulation	End use	Consumers	Service life (for articles)	Waste stage					
ES2 Formulation of use as a catalyst (as a substance or in a mixture)	N/A		X				X	SU8,	PC0	PROC1, 3, 4, 5, 8a, 8b, 9, 15	ERC2	NR
ES3 Formulation in a material as a catalyst (as a substance or in a mixture)	N/A			X			X	SU8.	PC0	PROC1, 3, 4, 5, 8a, 8b, 9, 15	ERC3	AC13a, 13e, 13g
ES4 industry in adhesives, putties (as a substance or in a mixture)	N/A			X			X	SU8, 19	PC1	PROC1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	ERC5	NR
ES5 professional in adhesives, putties (in a mixture)	N/A		X	X			X		PC1	PROC4, 5, 8a, 9, 10, 11, 13	ERC8f	NR
ES6 industry in paints, fillers, putties (as a substance or in a mixture)	N/A		X	X			X	SU8, 19	PC9a, 9b	PROC1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15	ERC5	NR
ES7 professional in paints, fillers, putties (in a mixture)	N/A		X	X			X		PC9a, 9b	PROC4, 5, 8a, 9, 10, 11, 13	ERC8f	NR
ES8 industry, in solid foams (as a substance or in a mixture)	N/A		X	X			X	SU2a, 12, 17, 18, 19	PC0	PROC1, 2, 3, 4, 5, 7, 8a, 8b, 9, 14, 15, 21	ERC5	NR
ES9 -	N/A		X	X			X	SU2a,	PC0,	PROC3, 4,	ERC8f	NR

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Exposure scenario no.	Volume (t/y)	Production	Identified uses			Life cycle stage		Sectors of Use (SU)	Chemical Products (PC)	Process category (PROC)	Environmental release category (ERC)	Articles (AC)
			Formulation	End use	Consumers	Service life (for articles)	Waste stage					
professional in solid foams (in a mixture)								12, 17, 18, 19		5, 8a, 10, 11		
ES10 industry, in flexible foams (as a substance or in a mixture)	N/A		X	X			X	SU12, 17, 18, 19	PC32	PROC1, 2, 3, 4, 7, 8a, 9, 14, 15, 21	ERC5	NR

N/A – not available (confidential information)

NR – not relevant

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DIMETHYLAMINOETHOXYETHANOL

SUMMARY OF RISK MANAGEMENT MEASURES

Name	Use of dimethylaminoethoxyethanol (DMEE)
Sectors of use	SU2a, SU8, SU12, SU17, SU18, SU19
Process categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC21
Chemical product category	PC0, PC1, PC9a, PC9b, PC32
Article category	AC13a, AC13e, AC13g
Environmental release categories	ERC2, ERC3, ERC5, ERC8f
Specific environmental release categories	
Included processes, tasks, activities	<p>This overview includes the use of DMEE in closed premises where workers come into contact with DMEE and/or where such contact may occur (whether by means of inhalation and/or skin contact) during sampling, maintenance and/or failures of equipment.</p> <p>It also covers other processing (use) of DMEE in the manufacture of various products, such as solid and flexible foams, paints, putties and fillers, where contact may occur during sampling, maintenance and/or failures of equipment.</p> <p>It covers the same processing (use) of DMEE in batch process or other processes where due to the structure of such process there is a possibility of contact with DMEE, which, however, is subject to control as part of operating conditions or risk management measures.</p> <p>It includes the transfer of DMEE by charging/discharging from/to small or large containers at dedicated facilities, which are subject to inspection within operating conditions and/or risk management measures.</p> <p>It also includes the use of DMEE as a laboratory reagent in small laboratories, in the quantity up to 1 l and/or 1 kg or smaller quantities available at the workplace, which are subject to inspection within operating conditions and/or risk management measures.</p> <p>It includes industrial and professional uses of DMEE as a component in solid and flexible foams, paints, glues and putties. In addition there are spraying methods, transport of DMEE with loading from/to small or large containers by means of specialized or non-specialized equipment, roller or brush application, finish by dip coating and glazing, and ,low-energy processing of substances bound in materials or articles.</p>

	Operating conditions and risk management measures
	Control of worker exposure
Product characteristics	
Physical form	Liquid
Vapour pressure	Low values
Concentration of the substance in the product	<p>At ES2: It covers substance concentration of up to 100 % and up to 4 %.</p> <p>At ES3: It covers substance concentration of up to 100 % and up to 4 %.</p> <p>At ES4, ES6, ES8 and ES10: It covers substance concentration of up to 100 % and up to 5 %.</p> <p>At ES5, ES7 and ES9: It covers substance concentration of up to 5 %.</p>

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Volume of use	n/a
Operating conditions	
Frequency and duration of use	It includes the exposure to effects of the substance for up to 8 hours (unless otherwise stated)
Risk factors for humans not influenced by risk management.	Not specified.
Other operating conditions with the effect on worker exposure to the substance	<p>DMEE is included among hazardous substances with acute effect, therefore, in the production and use of DMEE where the process is not carried out in a closed circuit, workers' health must be protected by using a local exhaust system and introducing suitable working procedures. They include:</p> <ul style="list-style-type: none"> • keeping the equipment under negative pressure, • checking the entry of workers to the workplace, • assurance of proper maintenance of all the equipment, • permissions to perform maintenance of the equipment, • regular tidying and cleaning of the equipment and the workplace, • a workplace system which ensures adherence to risk management measures and conditions for the working environment, training of employees focused on the correct set procedures, • procedures and training for emergency situations, including decontamination and removal procedures, • stipulated level of personal hygiene, • near miss record, • surveying employees' health condition with regard to sensitivity and regular verification of health fitness.

Risk management measures		
Scenarios	Process categories	Risk management measures
Exposure (ES2, ES3, ES4, ES6, ES8, ES10)	1 – Use in closed process, no likelihood of exposure.	<p>Handling of the substance in a closed circuit.</p> <p>Ensure that the material is under protection during transfer and/or the necessary exhaust is ensured.</p> <p>Use suitable eye protection aids and gloves.</p> <p>Use suitable working clothes for the protection against skin contact.</p>
Exposure (ES4, ES6, ES8, ES10)	2 – Use in closed, continuous process with occasional controlled exposure (e.g. sampling).	<p>Handling of the substance in a closed circuit.</p> <p>Ensure exhaust in places with substance emissions.</p> <p>Ensure proper exhaust at places of potential contact with the substance.</p>
Exposure (ES2, ES3, ES4, ES8, ES10)	3 – Use in closed batch process (synthesis or formulation).	<p>Use appropriate gloves (according to EN374), working clothes and eye protection.</p> <p>Use an all-face respirator (according to EN140), with a filter type A/P2 or better.</p> <p>Use suitable working clothes for the protection against skin contact.</p>

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Risk management measures		
Scenarios	Process categories	Risk management measures
Exposure (ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES9, ES10)	4 – Use in batch and other process (synthesis) where opportunity for exposure arises.	<p>Ensure exhaust in places with substance emissions.</p> <p>Ensure proper exhaust at places of potential contact with the substance.</p> <p>Use suitable eye protection aids and gloves.</p> <p>Use an all-face respirator (according to EN140), with a filter type A/P2 or better.</p> <p>Use suitable working clothes for the protection against skin contact.</p>
Mixing or blending (ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES9, ES10)	5 – Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact).	
Calendering operations (ES6)	6 – Calendering operations	
Spraying techniques (ES4, ES6, ES8, ES10)	7 – Spraying	
Transfer (ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES9, ES10)	8a – Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.	<p>Conduct filling of containers/cans at dedicated filling points equipped with proper ventilation.</p> <p>Ensure exhaust in places with substance emissions.</p> <p>Ensure proper exhaust at places of potential contact with the substance.</p> <p>Use appropriate gloves (according to EN374), working clothes and eye protection.</p> <p>Use an all-face respirator (according to EN140), with a filter type A/P2 or better.</p> <p>Use suitable working clothes for the protection against skin contact.</p>
Transfer (ES2, ES3, ES4, ES6, ES8)	8b – Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Transfer (ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES10)	9 – Transfer of substance or preparation into small containers (dedicated filling line, including weighing).	

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Risk management measures		
Scenarios	Process categories	Risk management measures
Surface cleaning (ES4, ES5, ES6, ES7, ES9)	10 – Roller application or brushing	<p>Ensure exhaust in places with substance emissions.</p> <p>Ensure proper exhaust at places of potential contact with the substance.</p> <p>Use suitable eye protection aids and gloves.</p> <p>Use an all-face respirator (according to EN140), with a filter type A/P2 or better.</p> <p>Use suitable working clothes for the protection against skin contact.</p>
Spraying techniques (ES5, ES7, ES9)	11 – Non industrial spraying	
Dip coating, glazing (ES4, ES5, ES6, ES7)	13 – Treatment of articles by dipping and pouring	
Compression, extrusion, pelletisation (ES4, ES6, ES8, ES10)	14 – Production of preparations or articles by tableting, compression, extrusion, pelletisation	
Laboratory activities (ES2, ES3, ES4, ES6, ES8, ES10)	15 – Use as laboratory reagent	
Low energy processing in materials or articles. (ES8, ES10)	21 – Low energy manipulation of substances bound in materials and/or articles.	

* standard statements and labelling come from the Worker Chemical Safety Assessment (CSA) Template for GES at the Cefic website - <http://www.cefic.be/templates/shwPublications.asp?HID=750>