

## SAFETY DATA SHEET

### 1. IDENTIFICATION OF PRODUCT AND COMPANY

#### 1.1. Identification of the product:

#### Monoethanolamine

Reach Registration number:	01-2119486455-28-0009
EC number:	205-483-3
EC name:	2-aminoethanol
CAS number:	141-43-5
CAS name:	Ethanol, 2-amino-
IUPAC name:	2-aminoethanol
Molecular formula:	C <sub>2</sub> H <sub>7</sub> NO
Molecular weight:	61.0831
Acronym:	MEA
Structural formula:	



#### 1.2. Use of the product:

IU number	Identified Use (IU) name	Sector of use (SU)
<i>Uses by workers in industrial settings</i>		
1	Manufacturing of MEA	8,9
2	Formulation of products containing MEA	3,10
3	Industrial use resulting in manufacture of another substance	8,9
6	Processing aid for paper, textile, leather	3,22
7	Gas/water treatment with MEA	3,23
8	Use of MEA in metal working fluids	3,22
9	Use of MEA in electroplating	3,16,22
10	Use of MEA in detergents, cleaners and ink removers	3,22
11	Use of MEA as additive in plastic, e.g. rubber	3,22
12	Use of MEA as a laboratory chemical	3,22
13	Use of MEA as additive in fuel	3,8
14	Use of fuel	3,22
17	Use of MEA in wood protection formulations	3
<i>Uses by professional workers</i>		
4	Use as additive in concrete and cement	22
6	Processing aid for paper, textile, leather	3,22
8	Use of MEA in metal working fluids	3,22
10	Use of MEA in detergents, cleaners and ink removers	3,22
11	Use of MEA as additive in plastic, e.g. rubber	3,22
12	Use of MEA as a laboratory chemical	3,22
14	Use of fuel	3,22
<i>Uses by consumers</i>		
5	Use of concrete and cement	19,21
15	Use of fuel	21
16	Use of MEA in detergents and cleaners	21
18	Use of MEA in wood protection formulations	21
19	Use of MEA in personal care products	10,21

#### 1.3. Identification of the company:

Company: Limited liability company **Sintez OKA**

Address: 606000, Russian Federation, Nizhny Novgorod region, Dzerzhinsk ,  
East industrial area Chimmash, 7<sup>th</sup> km of East road, building 547.

**1.4. Emergency Contact:**

(8313) 27-25-65 7:30am – 4:15pm  
 (8313) 27-25-80 round-the-clock  
 Fax: (8313) 27-25-72

**1.5. Person responsible for placement of the product in the market within the European Community:**

Independent Petroleum Distribution SA  
 Andrey Bachev  
 118, Drève Richelle postal code : 1410, Waterloo , Belgium  
 Phone: +3223514221  
 +41417402427  
 Fax: +41417402494  
 mail to: [ab@ipd-sa.com](mailto:ab@ipd-sa.com)

**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance:****2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]**

Hazard classes and Hazard categories	Hazard Statements
Acute tox.: Cat. 4 (Inhalation)	H332: Harmful if inhaled.
Acute tox.: Cat. 4 (dermal)	H312: Harmful in contact with skin.
Acute toxicity: Cat. 4 (oral)	H302: Harmful if swallowed.
Skin corr./irr.: Cat. 1B	H314: Causes severe skin burns and eye damage.
Specific target organ toxicity - single: Cat. 3 (Inhalation)	H335: May cause respiratory irritation.
Aquatic Chronic 3	H412: Harmful to aquatic life with long lasting effects.

**2.1.2 Classification according to 67/548/EEC or 1999/45/EC**

Xn; R20/21/22 Harmful; Harmful by inhalation, in contact with skin and if swallowed.  
 C; R34 Corrosive; Causes burns.

**2.2 Label elements****2.2.1 Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]**

Product identifier:

Substances: Monoethanolamine.  
 Index №: 603-030-00-8



Hazard pictograms:

Signal word: Danger.

Hazard statements:

H332: Harmful if inhaled.  
 H312: Harmful in contact with skin.  
 H302: Harmful if swallowed.  
 H314: Causes severe skin burns and eye damage.  
 H335: May cause respiratory irritation.  
 H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P202: Do not handle until all safety precautions have been read and understood.  
 P260: Do not breathe dust/gas/mist/vapours.  
 P264: Wash with plenty of water and soap thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.

Product: **Monoethanolamine**

P271: Use only outdoors or in a well-ventilated area.  
 P273: Avoid release to the environment.  
 P281: Use personal protective equipment as required.  
 P285: In case of inadequate ventilation wear respiratory protection.

*Precautionary Statements (Response):*

P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P363: Wash contaminated clothing before reuse.

*Precautionary Statements (storage):*

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P405: Store locked up.

*Precautionary Statements (Disposal):*

P501: Dispose of contents/container to hazardous or special waste collection point.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Name	CAS №	EC №	Index №	Reach Registration number	Mass concent, %	Classification according		
						67/548/EEC	Regulation (EC) No 1272/2008 [CLP]	
Monoethanolamine (MEA)	141-43-5	205-483-3	603-030-00-8	01-2119486455-28-0009	≥ 97	C; R20/21/22; R34	Acute tox.: Cat. 4 (Inhalation)	H332:
							Acute tox.: Cat. 4 (dermal)	H312:
							Acute toxicity: Cat. 4 (oral)	H302:
							Skin corr./irr.: Cat. 1B	H314:
							STOT single: Cat.3 (irr. to respiratory syst.)	H335:
							Aquatic Chronic 3	H412:
Diethanolamine (DEA)	111-42-2	203-868-0	603-071-00-1	01-2119488930-28-0008	≤ 2	Xi, Xn, R 22, R 38, R 41, R 48/22	Acute toxicity: Cat. 4 (oral)	H302:
							Skin corrosion/irritation: Cat.2	H315:
							Serious eye damage / irritation eye: Cat.1	H318:
							STOT RE 2	H373:
							Aquatic Chronic 3	H412:
Water	7732-18-2	231-791-2	—	—	≤ 2	—	—	—

Hazard symbols deciphering is given in section 16.

**4. FIRST-AID MEASURES****4.1 Description of first aid measures****4.1.1 General informations:**

Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary.

**4.1.2 Following inhaled:**

Keep patient calm, remove to fresh air, seek medical attention. Immediately inhale corticosteroid.

**4.1.3 Following skin contact:**

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

**4.1.4 Following eye contact:**

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

**4.1.5 Following ingestion:** Rinse mouth immediately and then drink plenty of water, seek medical attention.

**4.1.6 Self-protection of the first aider:** Should pay attention to own safety.

**4.1.7 Notes for the doctor:** Do not induce vomiting.

**4.2 Most important symptoms and effects, both acute and delayed** Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and in section 11. Further symptoms are possible.

**4.3 Indication of any immediate medical attention and special treatment needed** Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

## 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media:

**Suitable extinguishing media:** Water spray, dry extinguishing media, carbon dioxide, alcohol-resistant foam.

**Unsuitable extinguishing media:** Water jet.

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

**Hazardous combustion products:** Products of combustion are carbon oxides and nitrogen oxides, blood poison.

### 5.3 Advice for fire-fighters:

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

Do not approach to burning containers. Cool the containers with water from the maximum possible distance.

Precipitate the generated gases and vapors with sprayed water.

### 5.4 Additional information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

## 6. ACCIDENTAL RELEASE MEASURES

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

#### 6.1.1 For non-emergency personnel:

**Protective equipment:** Avoid inhalation. Avoid contact with the skin, eyes and clothing.

The wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the SDS) to prevent any contamination of skin, eyes and personal clothing;

**Emergency procedures:** Removal of ignition sources, provision of sufficient ventilation; the need to evacuate the danger area.

#### 6.1.2 For emergency responders:

**Personal protective equipment:** Self-contained breathing apparatus and chemical-protective clothing.

### 6.2. Environmental precautions:

Do not discharge into drains/surface waters/groundwater.

### 6.3. Methods for cleaning up or taking up:

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

Do not use saw-dust or other combustible substances as an absorbant during cleanup.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling:

#### 7.1.1 Protective measures:

**Fire preventions:** The product is combustible. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.  
No smoking.

**Aerosol preventions:** Ensure thorough ventilation of store and work areas.

**Environmental precautions:** Hermeticity of equipment, product storage tanks, containers.

**7.1.2 Advice on general occupational hygiene:**

Not to eat, drink and smoke in work areas.

Wash hands after use.

Remove contaminated clothing and protective equipment before entering eating areas.

**7.2 Conditions for safe storage, including any incompatibilities:**

Avoid extreme heat.

Segregate from acids and acid forming substances.

Keep container tightly closed and in a well-ventilated place.

Keep away from sources of ignition - No smoking.

Storage stability: Storage temperature: 20 °C.

Storage duration: 5-12 Months.

May discolour after lengthy storage.

Data on the storage life specified in the safety data are not a contractual guarantee of the properties of the product.

**7.3 Specific end uses:**

For a substance designed for a specific end use(s), recommendations attached in the exposure scenarios (exposure scenarios for identified uses described in Section 1.2 are included of Annex of SDS).

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Ensure preliminary and periodic medical examinations

**8.1. DNEL/PNEC-values:****DNEL -values:**

DNEL		Exposure route	Exposure frequency
for workers	for the general population		
1 mg/kg bw/day	0.24 mg/kg bw/day	Dermal	Long-term - systemic effects
-	3.75 mg/kg bw/day	Oral	Long-term - systemic effects
3.3 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	Inhalation	Long-term - local effects

Relevant DNELs for the monoethanolamine given in the exposure scenarios of the chemical safety report set out in the annex to the SDS.

**PNEC-values:**

Compartments	PNEC
<b>PNEC water</b>	
PNEC aqua (freshwater):	0.085 mg/L
PNEC aqua (marine water):	0.0085 mg/L
PNEC aqua (intermittent releases):	0.025 mg/L
<b>PNEC sediment</b>	
PNEC sediment (freshwater):	0.425 mg/kg sediment dw
PNEC sediment (marine water):	0.0425 mg/kg sediment dw
<b>PNEC soil</b>	
PNEC soil:	0.035 mg/kg soil dw
<b>PNEC sewage treatment plant</b>	
PNEC STP:	100 mg/L

Relevant PNECs for the monoethanolamine given in the exposure scenarios of the chemical safety report set out in the annex to the SDS.

**8.2. Exposure controls:**

The full range of specific risk management measures to be taken during use in order to minimise worker and environmental exposure.

**8.2.1 Appropriate engineering controls:**

Hermeticity of equipment, product storage tanks, containers.

Ensure thorough ventilation of store and work areas.

Avoid extreme heat.

Periodically control the content of harmful substances in the air of the working zone.

Handle in accordance with good industrial hygiene and safety practice.

**8.2.2 Personal protective equipment:****8.2.2.1 Eye protection:**

Tightly fitting safety goggles (splash goggles) (e.g. EN 166) and face shield.

**8.2.2.2 Skin protection:****Hand protection**

Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other Manufacturer's directions for use should be observed because of great diversity of types.

Supplementary note: The specifications are based on literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

**Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

**8.2.2.3 Respiratory protection:**

Wear respiratory protection if ventilation is inadequate.

Use in case of accidents – filter gas-masks to ensure protection against vapors of organic compounds, e. g. Gas filter EN 14387 Type A for gases/vapours of organic compounds (boiling point >65 °C).

**8.2.2.4 General safety and hygiene measures:**

Avoid contact with the skin, eyes and clothing. Do not breathe vapour/spray.

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Take off immediately all contaminated clothing. Store work clothing separately.

**8.2.3 Exposure controls of environmental impact:**

Discharge into the environment must be avoided.

To execute the full range of specific RMM and OC required to fulfill commitment under community environmental legislation.

Adequately control the impact of MEA on the environment is given in the exposure scenarios, annexed to the SDS.

**8.2.4 Consumer exposure control:**

The product is not intended for use in the home.

Adequately control the impact of MEA on the users is given in the exposure scenarios, annexed to the SDS.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Property	Results
<i>Physical state at 20°C and 1013 hPa</i>	The substance is an organic, colourless, viscous liquid with unpleasant, fishy, ammoniacal odour.
<i>Melting / freezing point</i>	10.5 °C
<i>Boiling point</i>	170.3 °C at 1013.25 hPa
<i>Relative density</i>	1.02 g/cm <sup>3</sup> at 20 °C
<i>Vapour pressure</i>	0.5 hPa at 20 °C
<i>Surface tension</i>	not surface active
<i>Water solubility</i>	> 1000g/l at 20°C (pH 12,1)
<i>Partition coefficient n-octanol/water (log value)</i>	-1.91 at 25 °C at pH 7.3
<i>Flash point</i>	92.5 °C at 1013,25
<i>Flammability</i>	Non flammable upon ignition. The substance has no pyrophoric properties and does not liberate flammable gases on contact with water.
<i>Explosive properties</i>	non explosive
<i>Self-ignition temperature</i>	410 °C

Product: **Monoethanolamine**

<i>Oxidising properties</i>	no oxidising properties
<i>pH value</i>	12.1
<i>Dissociation constant</i>	9.5 at 25 °C
<i>Viscosity</i>	23.18 mPa_s at 20 °C 9.80 mPa_s at 40 °C

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

### 10.2. Chemical stability

Monoethanolamine is stable when rules of storage and use are observed.

### 10.3 Possibility of hazardous reactions:

Reacts with oxidizing agents. The progress of reaction is exothermic. Reacts with acids. Reacts with halogenated compounds. Reacts with acid chlorides.

### 10.4 Conditions to avoid:

Avoid extreme temperatures. See MSDS section 7 - Handling and storage.

### 10.5. Incompatible materials

Substances to avoid: oxidizing agents, isocyanates, acid anhydrides, acid chlorides, acids, acid forming substances, copper alloys, mild steel.

### 10.6 Hazardous decomposition products

Carbon oxides and nitrogen oxides.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Toxicokinetics, metabolism and distribution

Topically applied MEA penetrates the skin, is widely distributed and is extensively metabolised in the body. A major site for metabolism is the liver.

### 11.2 Information on toxicological effects:

#### 11.2.1 Short-term effects:

##### Acute toxicity:

	Effect dose	Method	Remark
Acute oral toxicity	LD 50: 1515 mg/kg bw	Rat (OECD Guideline 401)	
Acute dermal toxicity	LD 50: 2504 mg/kg bw	Rabbit (OECD Guideline 402)	
Acute inhalative toxicity	LC 50: 1487 mg/m <sup>3</sup> air		

##### Skin corrosion / irritation:

Skin irritation / corrosion: corrosive.

The European Union (EU) has classified this substance with « Causes burns » (R34).

##### Serious eye damage/irritation:

Eye irritation: corrosive.

##### Respiratory or skin sensitisation:

No sensitizing effect.

#### 11.2.3 CMR-effects:

**Mutagenicity:** Genetic toxicity: negative.

**Carcinogenicity:** MEA is considered to be non-carcinogenic.

**Reproductive toxicity** Assessment of teratogenicity:

In animal studies the substance did not cause malformations.

**Specific target organ toxicity (single exposure)** Cat. 3 (H412: Harmful to aquatic life with long lasting effects.)

Route of exposure: inhalative

**12. ECOLOGICAL INFORMATION****12.1. Ecotoxicity:****Longterm-Ecotoxicity:**

	Effect dose	Exposure time	Species	Method	Evaluation
Long-term effects on fish	NOEC	30 day	Oryzias latipes	OECD Guideline 210	1,2 mg/L
Long-term effects on aquatic invertebrates	NOEC	21 day	Daphnia magna	OECD Guideline 211	0.85 mg/L

**Acute toxicity:**

	Effect dose	Exposure time	Species	Method	Evaluation
Acute fish toxicity	LC50	96 h	Pimephales promelas	flow-through flow through laboratory study according to Geiger et al.	2070 mg/L test mat. (nominal)
	LC50	96 h	Cyprinus carpio	Directive 92/69/EEC, C.1. (semi-static)	349 mg/L test
	LC50	24 h	Carassius auratus	ASTM method D 1345-70 (static)	> 5000 mg/L (pH 7)
		24 h			190 mg/L (pH 10.1)
		96 h			170 mg/L (pH 10.1)
LC50	48 h	Leuciscus idus melanotus	DIN 38412, Part 15 (static)	224 - 525 mg/L	
Acute invertebrates toxicity	EC50	48 h	Daphnia magna	EU Method C.2 (static)	65 mg/L
				OECD Guideline 202	97 mg/L
				Union Carbide Protocol 302 (static)	32.6 mg/L
Acute algae toxicity	EC <sub>50</sub>	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201	2.5 mg/l
Acute microorganisms toxicity	EC10	30 min	Activated sludge	OECD Guideline 209 (static)	> 1000 mg/L

**Toxicity test results:**

With high probability acutely not harmful to fish.

Acutely harmful to aquatic invertebrates.

Acutely toxic for algae.

**12.2 Persistence and degradability:**

Due to the results of Degradation, the substance is not persistent (not P) and not very persistent (not vP) in the environment.

The substance is readily biodegradable according to OECD criteria.

**Physical- and photo-chemical elimination:****Hydrolysis:**

The substance is readily biodegradable. Further, according to structural properties, hydrolysis is not expected/probable

**Phototransformation****in air:**

After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes

**in water:**

Radily biodegradable.

**in soil:**

Radily biodegradable.



*Biodegradation in water:*

>90 % (DOC removal) (21 d) (OECD Guideline 301 A (new version) (aerobic, activated sludge, domestic).

**12.3 Bioaccumulative potential:**

Log Kow (Pow): -1.91 at 25 °C.

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation: the substance is not bioaccumulative (not B) and not very bioaccumulative (not vB).

**12.4 Mobility in soil**

Assessment transport between environmental compartments:

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

**12.5 PBT or vPvB Properties Assessment:**

Regarding all available data on biotic and abiotic degradation, bioaccumulation and toxicity it can be stated that the substance does not fulfil the PBT criteria (not PBT) and not the vPvB criteria (not vPvB).

Information on: 2-aminoethanol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification.

Information on: 2,2'-iminodiethanol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification.

**12.6 Additional information:**

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

**13. DISPOSAL CONSIDERATIONS***Waste treatment methods*

Incinerate in suitable incineration plant, observing local authority regulations.

*Waste codes / waste designations according to EWC / AVV:*

A waste code in accordance with the European waste catalog (EWC) cannot be specified, due to dependence on the usage.

The waste code in accordance with the European waste catalog (EWC) must be specified in cooperation with disposal agency/manufacturer/authorities.

*Contaminated packaging:*

contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

**14. TRANSPORT INFORMATION****Land transport**

(ADR/RID/GGVSE):

Hazard class: **8.**

Packing group: **III.**

Hazard label: **8.**

UN number: **UN 2491.**

Proper shipping name: **Ethanolamine.**

**Sea transport (IMDG - Code/GGVSee):**

Hazard class: **8.**

Packing group: **III.**

Hazard label: **8.**

Marine pollutant: **no.**

UN number: **UN 2491.**

Proper shipping name: **Ethanolamine.**

**Air transport (ICAO-IATA/DGR):**

Hazard class: **8.**

Packing group: **III.**

Hazard label: **8.**

UN number: **UN 2491.**

Proper shipping name: **Ethanolamine.**

**15. REGULATORY INFORMATION****15.1 Regulations of the European Union (labeling):**

*Hazard determining component for labelling:*  
 2-AMINOETHANOL / ETHANOLAMINE  
 EC№: 205-483-3

*Regulations:*

- Directive 67/548/EEC;
- Regulation (EC) No 1272/2008.

**S-phrases for monoethanolamine** are in accordance with the Directive 67/548/EEC of June 27, 1967 for harmonization of legal and administrative regulations on classification, packing and labeling of dangerous substances:

*S-phrases:*

- S26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical advice;
- S36/37/39 - wear suitable protective clothing, gloves and eye/face protection;
- S45 - in case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**15.2 Chemical Safety Assessment:**

For monoethanolamine has been carried out a chemical safety assessment.

**16. OTHER INFORMATION****16.1 Key source for data:** CHEMICAL SAFETY REPORT.**16.2 Deciphering of the hazard symbols, R-phrases and hazard statements listed in section 3.***Hazard symbols:*

- C – corrosive;
- Xi – irritant;
- Xn – harmful.

*R-phrases:*

- 20/21/22 - harmful by inhalation, in contact with skin and if swallowed;
- 22 - dangerous if enters the organism;
- 34 - causes burns;
- 38 - causes skin irritation;
- 41 - risk of serious damage of the eyes;
- 48/22 - dangerous because of the possible serious health damage in case of long-term entering the organism.

*Hazard statements:*

- H332: Harmful if inhaled.
- H312: Harmful in contact with skin.
- H314: Causes severe skin burns and eye damage
- H335: May cause respiratory irritation.
- H412: Harmful to aquatic life with long lasting effects.
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H373: May cause damage to organs through prolonged or repeated exposure.

**16.3 Application to the SDS:**

Exposure scenarios for identified uses described in Section 1.2 are annexed to the SDS.

**16.4 Further information:**

Vertical lines in the left hand margin indicate an amendment from the previous version.

The above information is presented herein in good faith and is based on the current knowledge on the material. Standard requirements may be changed and may differ in different locations of the companies. Providing the compliance with the requirements of state and local laws is the responsibility of the Buyer.

Technical director

A.M. Burtsev