SAFETY DATA SHEET

Mudin Drain opener

Revision date: 12.01.2022

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	
Trade name	Mudin Drain opener
Article-no	85149
Unique Formula Identifier - UFI:	YQ1W-F0JH-2002-QKXV
Replace MSDS of	06.06.2017
Version number	3.0
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Uses of the chemical	Drain cleaner.
Uses advised against	Not recommended for purposes other than the uses for which the product is intended.
1.3 Details of the supplier of the safety data sheet	
Supplier	Norenco Norge AS Teglverksveien 79 3057 Solbergelva Norge Telefon: +47 66 99 55 33 http://www.norenco.no/
E-mail	Norenco@norenco.no
Responsible person	Norenco Norge AS
Author	Sensor Chemcontrol AS - Beate Karlsen
1.4 Emergency telephone number	**Emergency 112.** **Poison Information Centre: +47 22 59 13 00.**

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture	
Classification according to 1272/2008EC	Acute Tox 4; H302 Skin Corr 1A; H314 Eye Dam 1; H318 STOT SE 3; H335. Explanation of hazard statements (H-phrases) can be found in section 2.2.
2.2 Label elements	
Pictogram	 GHS05 GHS07
Signal word	Danger
Packaging requirements	According to the CLP regulation, the packaging must have childproof closure and tactile warning.
Hazard statement(s)	H335 May cause respiratory irritation. H314 Causes severe skin burns and eye damage. H302 Harmful if swallowed.
Precautionary statements	
General	P102 Keep out of reach of children.

Prevention	P234 Keep only in original container. P260 Do not breathe vapours/spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. 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 or doctor/physician.
Disposal	P501 Dispose of contents/container to disposal facilities for hazardous waste.
Ingredients for label	Potassium hydroxide Ethanolamine

2.3 Other hazards

Contains material that can be taken up through the skin.
The chemical does not contain endocrine disruptors above 0.1%, according to (EU) 2017/2100 or (EU) 2018/605.
REACH Annex XIII regulations regarding PBT or vPvB substances is not applicable for the product.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Ingredients	Identification	Classification	Note	Weight%
Potassium hydroxide	Reach nr: 01-2119487136-33 Ec/Nlp nr: 215-181-3 Cas nr: 1310-58-3 Index nr: 019-002-00-8	Acute Tox 4; H302 Skin Corr 1A; H314	9a,V2,Æ	30 - 60
Ethanolamine	Reach nr: 01-2119486455-28 Ec/Nlp nr: 205-483-3 Cas nr: 141-43-5 Index nr: 603-030-00-8	Acute Tox 4; H302 Acute Tox 4; H312 Skin Corr 1B; H314 Acute Tox 4; H332	9a,V2,Æ	1 - 5

Generic concentration limits and M-factors

Ingredients	Generic concentration limit and M-factor
Potassium hydroxide	Eye Irrit 2; H319: 0,5 % <= C < 2 % Skin Corr 1A; H314: C >= 5 % Skin Corr 1B; H314: 2 % <= C < 5 % Skin Irrit 2; H315: 0,5 % <= C < 2 %
Ethanolamine	STOT SE 3; H335: C >= 5 %

Explanation

Acute Tox 4: Acute toxicity.
Skin Corr 1B: Skin corrosion/irritation.
Skin Corr 1A: Skin corrosion/irritation.
Hazard phrases (H-phrases) with full text is found in section 16.

Ingredients comments

All concentrations are listed as weight percent.

The classification applies to each substance, not the product.

Note V2: The substance has a specific concentration limit according to Regulation (EC) No 1272/2008 (CLP, Article 10) or M factor for environmental classification.

Note Æ: The substance has an occupational exposure limit (OEL) or DNEL (Derived No Effect Level) values, see section 8 for more information.

Note 9a: The substance is harmonized and the classification is obtained from ECHA (European Chemicals Agency) C&L Inventory database.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Fresh air, warmth and rest, preferably in a comfortable, half-sitting position. If irritation and cough, contact a Poisons Information Centre for advice. Keep respiratory tract open.
Skin contact	Remove/take off contaminated clothing immediately. Rinse immediately with plenty of flowing lukewarm water for 30-60 minutes. If Diphoterine are on site, use this instead of water. Additional flushing may be applicable.
Eye contact	Start rinse immediately, do not delay the start of rinsing to find a specific rinse liquid. Rinse thoroughly also under the eyelids and remove powder residue. Remove any contact lenses. If Diphoterine are on site, use this instead of water. Continuous flushing for 30 minutes, preferably at the scene. Immediately call a POISON CENTER or physician.
Ingestion	Rinse mouth with water (only if the person is conscious). Seek medical advice immediately and show container or label. DO NOT INDUCE VOMITING.
4.2 Most important symptoms and effects, both acute and delayed	Splashes in the eyes may cause pain. Redness, lacrimation, blurred vision may occur. At worst, alkalis in corrosive concentration cause permanent visual impairment or blindness. If swallowing corrosive alkalis, it may take time before injury and pain develope. Eventually burns in mouth, throat, esophagus and stomach may occur. Skin contact: Defatting, cracking, eczema, redness and possible irritation.
4.3 Indication of any immediate medical attention and special treatment needed	Swallowing of alkalis in corrosive concentrations should be followed up at the hospital as soon as possible. In all cases of doubt, or when symptoms persist, seek medical attention.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media	
Suitable extinguishing media	Water spray, foam, CO2 or powder.
Extinguishing media which shall not be used	Avoid using directed water jets during extinguishing work.
5.2 Special hazards arising from the substance or mixture	Note that there is a danger of formation of poisonous gasses.
5.3 Advice for firefighters	Firefighters should use standard protective flame resistant jacket, helmet with face shield, gloves, rubber boots and self-contained breathing apparatus in confined areas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures	Do not get in eyes, on skin, or on clothing. Wear protective clothing as described in Section 8.2 of the material safety data sheet.
6.2 Environmental precautions	Emptying in drains beyond intended use is not recommended.
6.3 Methods and material for containment and cleaning up	Corrosive liquid. Wear appropriate protective equipment. Collect small amounts with absorbant material.
6.4 Reference to other sections	See section 7 for information on safe handling. See section 8 for information on personal protection equipment. See section 12 for information on ecology. See section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling	Use only in well ventilated areas. Wear eye/face protection. Avoid contact with eyes, skin and clothes. Do not eat, drink or smoke when using this product. Wear suitable gloves. Handle in accordance with good hygiene and safety practice. Operating instructions should be followed to ensure safe use and best results. Avoid inhaling vapours.
7.2 Conditions for safe storage, including any incompatibilities	Keep separate from acids. Keep away from oxidizing agents. Store locked up. Keep away from food, drink and animal feeds. Keep container in a well-ventilated place. Keep out of reach of children. Keep container tightly closed. Should be stored in original container.
7.3 Specific end use(s)	The identified uses of this product are described in section 1.2

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

			8 hour		Short				
Ingredients	EC nr	CAS nr	mg/m3	ppm	mg/m3	ppm	Ref.	Note	Year

Potassium hydroxide	215-181-3	1310-58-3	2				Norsk	T	2022
Ethanolamine	205-483-3	141-43-5	2.5	1			Norsk	H,E	2007

Limit values notes

Reference Norw: Measures and limit values for acceptable pollutants in the working atmosphere. Obtained from the norwegian regulation "Forskrift om tiltaks- og grenseverdier".

Note E: The EU has an occupational exposure limit for the substance.

Note T: Upper limit, a limit indicating the maximum concentration of a chemical in the breathing zone that should not be exceeded.

Note H: Skin absorbance. The substance can significantly penetrate the skin even if it is undamaged, and thus absorbed into the body. The uptake through the skin depends on many factors, such as. skin condition (wet, dry, sore, etc.) or the presence of other substances.

Derived no effect level (DNEL) — **Potassium hydroxide**

		Acute local effect	Acute systemic effect	Chronic local effect	Chronic systemic effect
Employee	-inhalation			1 mg/m³	
	-skin contact	High hazard (no threshold derived)		High hazard (no threshold derived)	
Consumer	-inhalation			1 mg/m³	
	-skin contact	High hazard (no threshold derived)		High hazard (no threshold derived)	

Derived no effect level (DNEL) — **Ethanolamine**

		Acute local effect	Acute systemic effect	Chronic local effect	Chronic systemic effect
Employee	-inhalation			510 µg/m³	1 mg/m³
	-skin contact	Medium hazard (no threshold derived)		Medium hazard (no threshold derived)	3 mg/kg bw/day
Consumer	-inhalation			280 µg/m³	180 µg/m³
	-skin contact	Medium hazard (no threshold derived)		Medium hazard (no threshold derived)	1.5 mg/kg bw/day
	-oral				1.5 mg/kg bw/day

8.2 Exposure controls

Exposure controls

Common sense and safety precautions should always be used when handling chemicals. Ensure that all containers are properly labeled to prevent accidental exposure or improper use. Ensure good working hygiene. Make use of recommended safety equipment. Provide adequate exhaust ventilation, or ventilation in the workplace. Avoid contact with eyes and skin.

Respiration protection

When working in confined spaces without adequate ventilation or in the case of vapour formation the following is recommended:
A respirator with gas and vapor filter against organic gases with a boiling point over 65 ° C class 2/inorganic gases class 2, type A2/B2 with filter color brown/gray; according to the standard (NS-EN-14387), or fresh air overpressure mask according to the standard (EN-137 , EN-270).
Respiratory equipment with gas filters may only be used combined with good routines for mesh adaptation and filter change. Respiratory protection must be used if air contamination exceeds occupational exposure levels.

Eye protection

Wear tight-fitted and approved eye protection. Equipment for eye washing must be available, preferably also a shower. Eye protection shall be in accordance to EN 166 standard.

Hand protection

Protective gloves of natural latex, nitrile, neoprene or PVC category 3 according to standard EN374-3 is recommended.
If continuous contact: Gloves with penetration time above 480 minutes.
If short-term splash/exposure (up to 30 minutes): Gloves with penetration time above 60 minutes.
All specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use. Check and possibly replace worn or damaged gloves. If contact with forearms is likely, wear gauntlet style. CE standards EN420 and EN374 provide general requirements and lists of glove types.

Skin protection

Wear suitable protective clothing.

Additional information	It is good industrial hygiene practices to avoid skin contact as much as possible. Do not wear rings, watches, etc, which are suitable for keeping the product and thereby cause skin reactions. Barrier creams may help to protect exposed skin, but can not substitute for gloves. Specific Hygiene Measures: Always observe good personal hygiene such as washing after handling product and before eating, drinking and / or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and shoes that can not be washed.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties	
a) Physical state	Liquid.
b) Colour	Transparent.
c) Odour	Odorless.
d) Melting point/freezing point	-6 °C
e) Boiling point or initial boiling point and boiling range	1 327 °C @ 101.325 kPa (potassium hydroxide, note B).
f) Flammability	The product is not combustible
g) Lower and upper explosion limit	The product is not classified as explosive, but explosive mixtures with air may form. -
h) Flash point	Not relevant - no ingredients are classified flammable.
i) Auto-ignition temperature	Not self-igniting.
j) Decomposition temperature	Not known
k) pH	14
l) Kinematic viscosity	Not known
m) Solubility	100% (Easily soluble)
n) Partition coefficient	Not relevant - inorganic substance.
o) Vapour pressure	Not known
p) Density and/or relative density	1,6
q) Relative vapour density	Not known
r) Particle characteristics	Not known
9.2 Other information	The physical and chemical properties specified in section 9.1 applies to the product and not to the individual ingredients or propellent gas, unless otherwise stated. Note B: The information is obtained from ECHA 'Brief Profile'.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Not known
10.4 Conditions to avoid	Heating may cause strong irritant vapors.
10.5 Incompatible materials	Avoid strong oxidizing substances. Reacts with acids. In order to avoid exothermic reaction, keep away from strong oxidizing substances, strong acids and bases.
10.6 Hazardous decomposition products	In case of fire, toxic or corrosive vapors may form by thermal decomposition. Burning releases CO2 and CO and other dangerous gases. No decomposition during normal storage.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008	
a) Acute toxicity	Harmful if swallowed. After ingestion of caustic alkali, it may take time before the injury and pain develops. Ingestion can cause corrosive damage to mouth, throat and digestive system. The toxicological values shown below apply to the product (substance mixture) and are estimated from the ingredients' ATE (Acute toxicity estimate) values calculated during classification.

LD50 oral (estimated value)	> 600 mg/kg (Acute Toxicity Estimate)
LC50 Inhalation (estimated value)	> 200 mg/l (Acute Toxicity Estimate)
For ingredient	**potassium hydroxide**
LD50 oral	LD50 333 - 388 mg/kg bw (rat) Echa Brief Profile
For ingredient	**ethanolamine**
LD50 oral	LD50 1 089 - 1 515 mg/kg bw (rat) LD50 1.07 - 1.19 mL/kg bw (rat) Echa Brief Profile
LD50 dermal	LD50 2 504 - 2 881 mg/kg bw (rabbit) LD50 2.46 - 2.83 mL/kg bw (rabbit) Echa Brief Profile
LC50 Inhalation	LC50 (6 h) 1.3 mg/L air (rat) LC0 (6 h) 1.3 mg/L air (rat) Echa Brief Profile
b) Skin corrosion/irritation	Causes severe burns to skin and eyes. Frequent exposure can be irritating. If spilled on the skin it will first feel smooth. Pain, blistering and sores that resemble burns later develops.
c) Serious eye damage/ irritation	Splash of concentrate or dilution in the eyes may cause serious damage. May destroy the cornea.
d) Respiratory or skin sensitisation	Based on available data, the classification criteria are not met.
e) Germ cell mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductive toxicity	Based on available data, the classification criteria are not met.
h) STOT-single exposure	May cause irritation of respiratory tract.
i) STOT-repeated exposure	Based on available data, the classification criteria are not met.
j) Aspiration hazard	Based on available data, the classification criteria are not met.
11.2. Information on other hazards	Probable route of exposure: Skin contact. Inhalation of vapors. Swallowing.
Endocrine disrupting properties	The chemical does not contain endocrine disruptors above 0.1%, according to (EU) 2017/2100 or (EU) 2018/605.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Harmful to aquatic organisms due to high pH value. Toxic to fish and plankton. No harmful long-term effects are expected on aquatic organisms.
12.2 Persistence and degradability	Expected to be quickly degradable and is "easily biodegradable" according to OECD regulations.
12.3 Bioaccumulative potential	Bioaccumulation is unlikely.
12.4 Mobility in soil	The product is water soluble and has the potential for high mobility in soil.
12.5 Results of PBT and vPvB assessment	Not relevant for inorganic substances. The chemical does not meet the criteria for PBT or vPvB in accordance with REACH Annex XIII.
12.6 Endocrine disrupting properties	The chemical does not contain endocrine disruptors above 0.1%, according to (EU) 2017/2100 or (EU) 2018/605.
12.7 Other adverse effects	Bases causing pH increase in the water, which can lead to fish death at the spill site. pH> 9 is harmful to fish.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	
Disposal group	EWC: *16 03 05 organic wastes containing dangerous substances. EWC: *20 01 29 detergents containing dangerous substances. EWC: *20 01 15 bases. The EWC code are for illustrative purposes only. Always check the waste codes in view of the current state the product is in. The final waste groups and tags must be determined by the user, based on the actual use of the product.
Packings	EWC: 15 01 02: plastic packaging.
Additional information	Dispose of contents/container to disposal facilities for hazardous waste. Emptying in drains beyond intended use is not recommended.

According to Commission Regulation 1357/2014, waste is classified as waste type:
HP 8 Corrosive: waste which on application can cause skin corrosion.
HP 6 Acute Toxicity: waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.
HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity: waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number or ID number	UN 1814
14.2 UN proper shipping name	
Item name	KALIUMHYDROKSIDLØSNING
IMDG proper shipping name	Potassium hydroxide solution
14.3 Transport hazard class(es)	
Label	8
ADR/RID class	8
ADR/RID classification code	C5
ADR/RID danger number	80
ADR/RID free quantity	1 L / E2
IMDG class	8
IMDG EmS	F-A, S-B
IATA class	8
14.4 Packing group	II: Intermediate hazardous substances.
14.5 Environmental hazards	n/a
14.6 Special precautions for user	Harmful if swallowed. Causes burns.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	n/a

SECTION 15: REGULATORY INFORMATION

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

Norwegian Regulations: "FOR-2012-06-16-622 Forskrift om klassifisering, merking og emballering av stoffer og stoffblandinger (CLP)".

COMMISSION DELEGATED REGULATION (EU) 2020/217 of 4 October 2019 (ATP14).

COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

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.

Transport of hazardous goods: ADR, RID, IMDG, IATA (2017).

COMMISSION DIRECTIVE (EU) 2017/164 of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

FOR 2004-06-01 nr 922: Norwegian regulations on the restriction of use of hazardous chemicals and other products "produktforskriften".

ECHA (European Chemicals Agency) C&L Inventory database.

DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives.

	Regulation (EC) no. 648/2004 of 31 March 2004 on detergents. FOR-2015-05-19-541 Forskrift om deklarering av kjemikalier til produktregisteret (norwegian regulation for product declaration). European Waste Catalogue and Hazardous Waste List Valid from 1 January 2002.
15.2 Chemical safety assessment	An assessment of the chemical safety (exposure scenario) exists for one or more of the ingredients in the product.
Additional information	Classification of this product is given on the basis of the available information from the vendor.

SECTION 16: OTHER INFORMATION

Relevant hazard- and risk phrases given in section 3	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H332 Harmful if inhaled.
Key literature references and sources for data	Material safety data sheet from the supplier.
Abbreviations in the document	n/a - No relevant information. EWC - European Waste Catalogue codes. vPvB - very Persistent and very Bioaccumulative (require special attention under REACH). PBT - Persistent, Bioaccumulative and Toxic. LD50 - The amount of a chemical given to a particular group of experimental animals that leads to deaths of 50%. LC50 - The concentration of a chemical in air or water as for a particular group of experimental animals which leads to more than 50% deaths over a given period of time. STOT - Toxic effect on certain organs. bw/day - body weight / day.
First released	24.05.2017
Additional information	Revised and quality controlled by: Sensor Chemcontrol AS Storgata 30 3611 Kongsberg Norway Tlf: +47 32 77 06 60 E-mail: helpdesk@sensor.as URL: www.sensor.as.

--- SAFETY DATA SHEET conforming to commission regulation (EC) 1272/2008 and (EU) 2020/878 ---