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SAFETY DATA SHEET

Safety data sheet according to (EF) no. 1907/2006.

POINT 1: Identification of material/compounds and of the company/factory

1.1. Product identifier:

Alka-Liq
UFI: VE20-K0K8-8009-CQ8P

1.2. Relevant identifying use of the material or compound and the usage that is contraindicated:

Detergent for e.g. milking robots, cooling tanks and most types of milking systems.
Dilute with water before use. Dosage: 0.5-1.5%.

1.3. Detailed information about the supplier for the safety data sheet:

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Teglvaerksvej 11
4733 Tappernoeje
Denmark
Tel.: +45 56214070
Responsible for safety data sheet (e-mail): jorenku@jorenku.dk

1.4. Emergency phone:

Contact the poison centre in your own country.

POINT 2: Identification of danger

2.1. Classification of the material or compound:

Corrosive and environmentally dangerous liquid.
CLP (1272/2008): Met. Corr. 1;H290 Skin Corr. 1A;H314 Eye Dam. 1;H318 Aquatic Chronic 3;H412

2.2. Label elements:


DANGER

Contains:	Sodium hydroxyde
H290:	May be corrosive to metals.
H314:	Causes severe skin burns and eye damage.
H412:	Harmful to aquatic life with long lasting effects.
P280:	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353+P310:	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/ doctor.
P305+P351+P338+P310:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P390:	Absorb spillage to prevent material damage.
P406:	Store in corrosive resistant container with a resistant inner liner.
P501:	Dispose of contents/container in accordance with local regulations.

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2.3. Other dangers:
PBT/vPvB: The ingredients are not PBT/vPvB according to the criteria in REACH annex XIII.
Endocrine disrupting properties: The ingredients are not considered endocrine disruptors according to the Commission's criteria delegated regulation 2023/707.

POINT 3: Compensation of/information about contents

3.1. Compensation of/information about contents
3.2. Compounds:

Substance name	CAS	EF-No.	Index-no.	REACH reg.no.	Substance Classification	Note
Sodium hydroxyde	1310-73-2	215-185-5	011-002-00-6	01-2119457892-27	Met. Corr. 1;H290 Skin Corr. 1A;H314 Eye Dam. 1;H318	1
Sodium hypochlorite	7681-52-9	231-668-3	017-011-00-1	-	Skin Corr. 1B;H314 Eye Dam. 1;H318 Aquatic Acute 1;H400 (M=10) Aquatic Chronic 1;H410 (M=1) EUH031	2, 3
Potassium hydroxide	1310-58-3	215-181-3	019-002-00-8	01-2119487136-33	Acute Tox. 4;H302 Skin Corr. 1A;H314 Eye Dam. 1;H318 Met. Corr. 1;H290	4, 5

1) SCL (Specific Concentration limits) for classification: Skin Corr. 1A; H314: C ≥ 5%; Skin Corr. 1B; H314: 2% ≤ C < 5%; Skin Irrit. 2; H315/Eye Irrit. 2; H319: 0,5% ≤ C < 2% (the C&L list, EU-harmonised).
2) SCL (Specific Concentration limits) for classification: EUH031: C ≥ 5 % (the C&L list, EU-harmonised)
3) The substande can release volatile chlorine
4) SCL (Specific Concentration limits) for classification: Skin Corr. 1A; H314: C > 5%; Skin Corr. 1B; H314: 2% < C < 5%; Eye Irrit. 2; H319: 0.5% < C < 2%; Skin Irrit. 2; H315: 0.5% < C < 2% (the C&L list, EU-harmonised).
5) ATE (oral) = 333 mg/kg.

The wording of the hazard statements - see paragraph 16.

POINT 4: First aid measures

4.1. Description of first aid measures:
Inhalation: Bring the person to fresh air. Keep the person calm under supervision. In case of discomfort: Seek medical attention.
Skin: Immediately remove contaminated clothing. Rinse skin and wash thoroughly with soap and water. In case of discomfort: Seek medical attention.
Eyes: Rinse immediately with water or physiological saline for at least 30 minutes. If possibly remove contact lenses and open the eye wide. In case of continued irritation: seek medical attention. Rinsing is continued during transport to the doctor/hospital.

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Ingestion: Immediately rinse mouth thoroughly and drink water in copious amounts. **Do not induce vomiting.** If vomiting occurs, keep the head low to avoid stomach contents in the lungs. Immediately call an ambulance.

4.2. Most important symptoms and effects, both acute and delayed:
Corrosion of airways with throat pain, cough and shortness of breath, which can occur several hours after exposure. Corrosion of the mucous membranes in the mouth and the skin and eyes with severe pain. The corrosion can cause severe and irreversible tissue damage. By formation of chlorine vapors, there is a risk of water in the lungs (lung oedema), with symptoms (shortness of breath) occuring several hours after exposure.

4.3. Indication of whether emergency medical attention and special treatment are needed:
In case of unconsciousness or discomfort: Immediately call a doctor or an ambulance. Show this safety data sheet to the doctor or emergency department.

POINT 5: Fire suppression

5.1. Suppression methods:
Water fogging (never water jet - spreads the fire), foam, powder or carbon dioxide.

5.2. Special dangers in connection with the material or compound:
Avoid inhalation of flue gases. In case of fire, highly toxic gases are formed: chlorine and corrosive hydrogen chloride.

5.3. Indication for a fire department:
Use compressed air mask by heavy smoke.

POINT 6: Accidental release measures

6.1. Personal precautions, personal protective equipment, and emergency procedures:
Use personal protective equipment - see point 8. Ensure good ventilation.

6.2. Environmental protection indications:
Avoid discharge to drains - see point 12. Inform local environmental authorities in case of spillage to the environment.

6.3. Methods and equipment for containment and cleaning:
Soaked up with granulate or similar and handled as chemical waste. Rinse thoroughly with water. Further waste handling - see point 13.

6.4. References to other points:
See above.

POINT 7: Handling and storage

7.1. Measures for safe handling:
AVOID ALL CONTACT also during dilution. Immediately change contaminated clothing. Do not breahte aerosol vapour. Ensure effective ventilation. After use, wash with plenty of water and soap. There must be access to water and eyewash bottles. Moisturizer prevents excessive dryness of the skin and can with great advantage be used at the end of the work.

7.2. Conditions for safe storage, including any incompatibility:
Store in a well-closed container in a cool (frost-free) and well-ventilated place. Suitable materials for container: Stainless steel or carbon steel. Work must be carried out separately from acids (acid will

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release toxic and volatile chlorine vapours). Sodium hydroxide can corrode rubber, painted surfaces and certain types of plastic. Sodium hydroxide and its solutions must not be stored in galvanized packaging or packaging with light metal bungs, as this leads to the development of explosive hydrogen gas. Safe, inaccessible to unauthorized persons, separated from food, feed, medicines etc.

7.3. Special usage:
See use - point 1.

PUNKT 8: Exposure control/personal protective equipment

8.1. Control parameter:
AT-limit value (reg. 291 of 19.03.2024):

	8-hours limit value	Short-term limit value	Anm.
Sodium hydroxyde	-	2 mg/m^3	L
Chlorine (from Sodium hypochlorite)	-	0.5 ppm = 1.5 mg/m^3	E
Potassium hydroxide	-	2 mg/m^3	-

E: Included in the EU's limit value list.
L: The specified limit value in the "Short-term limit value" column is a ceiling value.

DNEL:	Exposure	Value	Population	Effects
Sodium hypochlorite	Inhalation, acute Inhalation, long-term Inhalation, acute Inhalation, long-term Inhalation, long-term	3.1 mg/m^3 1.55 mg/m^3 3.1 mg/m^3 1.55 mg/m^3 0.26 mg/kg/d	Worker Worker Consumer Consumer Consumer	Local/Systemic Local/Systemic Local/Systemic Local/ Systemic Systemic
Sodium hydroxyde & potassium hydroxide	Long-term-Inhalation Long-term-Inhalation	1 mg/m^3 1 mg/m^3	Workers Consumers	Local Local
PNEC:	**Medium**	**Value**		
Sodium hypochlorite	Fresh water Sea water Sporadic discharge Fresh water sediment Sea water sediment Soil Sewage works (STP) Secondary poisoning	0.21 µg/l 0.042 µg/l 0.0109 mg/l No exposure No exposure No exposure 4.69 mg/l 11.1 mg/kg food		

8.2. Exposure control:
Appropriate measures for exposure control: Provide effective ventilation.
Personal protective equipment:
Inhalation: By insufficient ventilation or squirting: Use approved mask with particle filter P2 (EN149). The filters have a limited service life (must be changed). Read the manufacturer's instructions.
Skin: Use protective gloves (EN374) of nitrile rubber (> 0,4 mm) or butyl rubber. Expected breakthrough time: Up to 3 hours.
Eyes: Close-fitting safety glasses (EN166) or face shield (EN 175).
Environmental exposure controls: Avoid discharge to the environment/sewer.

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POINT 9: Physical and chemical characteristics

9.1. Information about basic physical and chemical characteristics:

Appearance:	Liquid
Colour:	Uncoloured
Odor:	Chlorine-like
Melting point/freezing point (°C):	Not decided
Boiling point or bubble-point and boiling point interval (°C):	Not decided
Ignitability (solid, gaseous):	Not decided
Upper/lower explosion limits (vol-%):	Not decided
Flash point (°C):	Not decided
Auto-ignition temperature (°C):	Not decided
Self-accelerating decomposition temperature (°C):	Not relevant
pH:	Strongly alkaline
Kinematic viscosity (mm^2/s at 40°C):	Not decided
Solubility (mg/l):	Soluble in water
Partition coefficient n-octanol/water Log K_{ow}:	Not decided
Vapor pressure (hPa, 20°C):	Not decided
Density and/or relative density (g/cm^3):	> 1
Relative vapor density (air=1):	Not decided
Particulate properties:	Not decided for liquids

9.2. Other information: None known.

POINT 10: Stability and reactivity

10.1. Reactivity:
See point 10.5.

10.2. Chemical stability:
Stable under recommended storage conditions - see point 7. Sodium hypochlorite works strongly oxidizing and thus disinfecting.

10.3. Risk of dangerous reactions:
Sodium hydroxide dissolves fat platings and corrode gaskets, certain synthetic materials and rubber materials. Reacts with metals during formation of hydrogen with the risk of forming explosive hydrogen-/air mixtures. Reacts during heat generation with water, acids (e.g. hydrochloric acid) and chlorine.

10.4. Conditions that should be avoided:
May not be exposed to heating (e.g. solar radiation), as gauge pressure can develop. Avoid frost. Avoid all heating (toxic chlorine gas is formed when heated).

10.5. Materials that should be avoided:
Avoid all contact with acids or acidic products (sodium hypochlorite releases toxic and volatile chlorine upon contact with acids). Furthermore, avoid contact with light metals such as aluminium, zinc and tin or other non-alkali-resistant surfaces (risk of formation of flammable and explosive hydrogen gas). Sodium hypochlorite can also react with organic substances, reducing compounds and solid metals.

10.6. Dangerous decomposition products:
By strong heating, toxic chlorine gases and corrosive hydrogen chloride are formed.

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POINT 11: Toxicological information

11.1. Information about hazard classes as defined in Regulation (EC) No 1272/2008:

Acute toxicity: Based on available data, the classification criteria are not met.
Skin corrosion/irritation: Skin Corr. 1A; H314 Causes severe skin burns and eye damage.
Serious eye damage/eye irritation: Eye Dam. 1; H318 Causes serious eye damage.
Respiratory or skin sensitization: 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.
Reproduction toxicity: Based on available data, the classification criteria are not met.
Single STOT-exposure: Based on available data, the classification criteria are not met.
Repeated STOT-exposures: Based on available data, the classification criteria are not met.
Based on available data, the classification criteria are not met.
Aspiration hazard: Based on available data, the classification criteria are not met.

Danger class	Data	Test	Data source
Acute toxicity:			
Inhalation	LC_{50} (rat) > 10.5 mg/l (Sodium hypochlorite)	OECD 403	IUCLID
Dermal	LD_{50} (rabbit) = 1350 mg/kg – corrosion (Sodium hydroxyde)	Not informed	IUCLID
	D_{50} (rabbit) > 10000 mg/kg (Sodium hypochlorite)	Not informed	IUCLID
Oral	LD_{100} (rabbit) = 500 mg/kg – corrosion (Sodium hydroxyde)	Not informed	IUCLID
	LD_{50} (rat) = 8200 mg/kg (Sodium hypochlorite)	Not informed	IUCLID
	LD_{50} (rat) = 333 mg/kg (Potassium hydroxide)	OECD 425	IUCLID
Corrosivity/ irritation:	Strong corrosion (< 3 min), rabbit (Sodium hydroxyde)	Not informed	IUCLID
	Skin irritation, rabbit (Sodium hypochlorite)	OECD 404	IUCLID
	Eye corrosion, human (Sodium hypochlorite)	Not informed	IUCLID
	Severe eye irritation, rabbit (Sodium hypochlorite)	OECD 405	Supplier
	Øjenætsning, rabbit (Potassium hydroxide)	Not informed	IUCLID
	Skin corrosion, human skin model (Potassium hydroxide)	In vitro	ECHA
	Severe skin irritation, 50 mg/24H, human (Potassium hydroxide)	Draize	RTECS
Sensitisation:	No skin sensitization, guinea pig (Sodium hydroxyde)	Intracutan	IUCLID
	Skin sensitization, human (Sodium hypochlorite)	Patch	IUCLID
	Skin sensitization, guinea pig (Sodium hypochlorite)	OECD 406	Supplier
	No skin sensitization, guinea pig (Potassium hydroxide)	Intracutan	ECHA
CMR:	No genotoxicity by in vitro test (Sodium hydroxyde)	AMES	IUCLID
	No mutagenicity, rat, oral, 900 mg/kg (Sodium hypochlorite)	DNA damage	IUCLID
	No carcinogenicity, rodent, oral, 275 mg chlorine/l, 2Y		
	No reprotoxicity, rodent (Sodium hypochlorite)	Not informed	IUCLID
	No genotoxicity (Potassium hydroxide)	Life	IUCLID
	No available data for carcinogenicity and reproduction toxicity (Potassium hydroxide)	In vitro test -	IUCLID -

Usual exposure methods: Skin, lungs, and gastrointestinal tract.
Symptoms
Inhalation: May be corrosive on the respiratory tract with sore throat, cough, and risk of water in the lungs (lung edema). Be aware that the symptoms (breathlessness) may occur several hours after exposure.

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Skin: Corrosive with redness, wounds and strong pain. In addition, it has a degreasing effect. Chlorine fumes can be absorbed through the skin.
Eyes: Corrosive with redness, strong pain, loss of vision and swelling.
Ingestion: Strongly corrosive on the mucous membranes in the mouth, throat and gastrointestinal tract with stomach ache, nausea, vomiting, diarrhoea, stomach bleeding, drop in blood pressure, shortness of breath, cramps, restlessness and salivation.
Chronic effects: By frequent contact with the skin, a contact allergy can develop.

11.2. Information about other hazards: None known.

POINT 12: Environmental information

12.1. Toxicity:

Aquatic	Data	Test (Media)	Data source
Fish	LC_{50} (Gambusia affinis, 96h) = 125 mg/l (Sodium hydroxyde)	Static (FW)	IUCLID
	LC_{50} (Oncorhynchus mykiss, 96h) = 45 mg/l (Sodium hydroxyde)	Not informed (FW)	Supplier
	LC_{50} (Oncorhynchus gorbuscha, 96h) = 0,023-0,052 mg Cl2/l (Sodium hypochlorite)	Flow through (FW)	IUCLID
	LC_{50} (Gambusia affinis, 96h) = 80 mg/l (Potassium hydroxide)	Static (FW)	IUCLID
Crustacean	EC_{50} (Ceriodaphnia dubia, 48h) = 40.4 mg/l (Sodium hydroxyde)	Not informed (FW)	EPA Ecotox
	EC_{50} (Daphnia magna, 48h) = 30 mg/l (Sodium hydroxyde)	Not informed (FW)	Supplier
	EC_{50} (Ceriodaphnia sp., 24h) = 0.006 mg hypochlorit/l (Sodium hypochlorite)	Not informed	IUCLID
	EC_{50} (Daphnia magna, 48h) = 141 µg/l (Sodium hypochlorite)	Not informed	ECHA
	NOEC (Daphnia magna, 48h) = 50 µg/l (Sodium hypochlorite)	Not informed	ECHA
Alga	EC_{50} (Skeletonema costatum, 24h) = 0.095 Cl2/l (Sodium hypochlorite)	Not informed	IUCLID

12.2. Persistence and degradability:
The ingredients are inorganic substances. Methods for determining the biodegradability do not apply to inorganic substances.

12.3. Bioaccumulative potential:
Sodium hydroxyde: Log K_{ow} < 0 (no significant bioaccumulation).
Potassium hydroxide: Log K_{ow} (calculated) < 0 (no significant bioaccumulation).

12.4. Mobility in soil:
Sodium hydroxyde is soluble in water and will upon solution in water split into sodium and hydroxide ions, for which great mobility in soil environments is expected. In the presence of water, potassium hydroxide will split into potassium and hydroxide ions.

12.5. Results of PBT and vPvB assessment:
The ingredients are not PBT/vPvB according to the criteria in REACH annex XIII.

12.6. Endocrine-disrupting capacities:
None known.

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12.7. Other adverse effects:
Discharge of larger quantities can change the pH value in the aquatic environment and disturb the balance in the ecosystems.

POINT 13: Removal

13.1. Methods for waste handling:
The chemical must be considered as hazardous waste. Use the local authority's collection scheme.

Chemical waste group:	**EAK-code:**
X	02 01 08

POINT 14: Transport information

14.1. UN-number or ID-number: 1760
14.2. UN-shipment designation (UN proper shipping name): CORROSIVE LIQUID, N.O.S. (sodium hydroxyde)
14.3. Transport danger class(es): 8
14.4. Packaging group: I
14.5. Environmental dangers: No.
14.6. Special regulations for the user: None.
14.7. Bulk transport by sea according to IMO instruments: Not relevant.

POINT 15: Information about regulations

15.1. Special determinations/special rules for the material or compound with respect to safety, health and environment:
May not be used by young people under 18 years of age. (cf. the working environment authority's report on the performance of young people's work).

PR-nr.: 4446019

15.2. Chemical safety evaluation:
No CSR.

POINT 16: Other information

Hazard statements given under point 3:
EUH 031: Contact with acids liberates toxic gas.
H290: May be corrosive to metals.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Abbreviations:
AT = Working environment authority
CMR = carcinogenic, mutagenic, or toxic to reproduction
CSR = Chemical Safety Report
DNEL = Derived No-Effect Level
EC_{50} = Effect Concentration 50 %
LC_{50} = Lethal Concentration 50 %
LD_{50} = Lethal dosage 50 %

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PBT = Persistent, Bioaccumulative, Toxic
PNEC = Predicted No-Effect Concentration
FW = Fresh Water
vPvB = very Persistent, very Bioaccumulative

Literature:
ECHA = REACH Registration dossier from ECHA's website
EPA Ecotox = US Environmental Protection Agency (database with ecotoxicological data for chemical compounds)
The supplier's safety data sheet

Advice on training / instruction:
The product may only be used by persons who are carefully instructed in the execution of the work and who have knowledge of the contents of this safety data sheet.

Changes since previous version:
1, 2, 3, 8, 11 & 12

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