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3.0 Composition/ Information on ingredients

3.1	Substances			
Not Applicable				
3.2	Mixtures			
	Name	Product Identifier	%	GHS-US classification
	Sodium Hydroxide	(CAS-No.) 1310-73-2	23.79	Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 3, H402
	Water	(CAS-No.) 7732-18-5	76.21	Not classified
	Finished product specification	Caustic Soda Lye (25 %)		
	Chemical Analysis			
	PARAMETERS			Specification
	Specific Gravity			1.24 – 1.27
	Temperature °C			40 - 60
	Sodium Hydroxide (at above temp) g/lit			304 - 324
	Sodium Hydroxide (at above temp) wt.%			25 ± 0.5
	Carbonate as Na2CO3	wt. %.	≤ 0.15	
	Sulphate as Na2SO4	ppm	≤ 50	
	Chloride as NaCl	ppm	≤ 50	
	Iron as Fe +3	ppm	≤ 2.5	
	Nickel as Ni	ppm	≤ 0.5	
	Copper as Cu+2	ppm by wt	≤ 1.0	
	Manganese as Mn+2	ppm by wt	≤ 1.0	
	Silicate as SiO2	ppm by wt	≤ 5.0	
	PH			≤ 14.0

4.0 First Aid Measures


4.1. Description of first aid measures

First-aid measures general	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
First-aid measures after skin contact	Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

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First-aid measures after eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Do not give chemical antidote. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.
4.2. Most important symptoms and effects (acute and delayed)	
Symptoms/effects	Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/Oedema. Risk of lung edema. Respiratory difficulties.
Symptoms/effects after skin contact	Caustic burns/corrosion of the skin. Slow-healing wounds.
Symptoms/effects after eye contact	Corrosion of the eye tissue. Permanent eye damage. Causes serious eye damage.
Symptoms/effects after ingestion	Vomiting. Diarrhoea. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Bleeding of the gastrointestinal tract. Shock. AFTER ABSORPTION OF LARGE QUANTITIES: Disturbances of consciousness.
Chronic symptoms	ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract.
4.3. Immediate medical attention and special treatment, if necessary	
Obtain medical assistance.	


5.0 Fire Fighting Measures		
5.1	Suitable Extinguishing Media	Foam. Dry powder. Carbon dioxide. Water spray. Sand
	Unsuitable Extinguishing Media	Solid water jet ineffective as extinguishing medium.
5.2	Specific hazards arising from the chemical	Fire Hazard: Not Flammable Explosion hazard: Not available Reactivity: Violent exothermic reaction with water (moisture): (increased) risk of fire. On heating: release of corrosive gases/vapours. Absorbs the atmospheric CO ₂ . Violent exothermic reaction with (some) acids. May be corrosive to metals. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).
5.3	Special protective equipment and precaution for firefighters	Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. In case of fire, stop leak if safe to do so. When cooling/extinguishing: no water in the substance. Prevent fire-fighting water from entering environment. Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

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		Other information: Not available.
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6.0 Accidental Release Measures		
6.1	General measures	Eliminate ignition sources. Ensure adequate ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
6.1.1	For non-emergency personnel	
	Protective equipment	Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air apparatus. Large spills/in enclosed spaces: gas-tight suit. See "Material-Handling" to select protective clothing.
	Emergency procedures	Mark the danger area. No naked flames. Wash contaminated clothes. Large spills/in confined spaces: consider evacuation. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.
6.1.2	For emergency responders	
	Protective equipment	Equip cleanup crew with proper protection.
	Emergency procedures	Ventilate area.
6.2	Environmental precautions	<ul style="list-style-type: none"> • If possible, dam large quantities of liquid with sand or earth. • Collect the product with suitable means. • Place everything into a closed, labelled container compatible with the product. • Store the product in a safe and isolated place
6.3	Methods and material for containment and cleaning up	
	For containment	Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapors with water curtain. Heat exposure: dilute toxic gas/vapors with water spray. Take account of toxic/corrosive precipitation water.
	Methods for cleaning up	Take up liquid spill into absorbent material, e.g.: sand, saw dust, kieselguhr. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Small quantities of liquid spill: neutralize with acid solution. Wash away neutralized product with plentiful water. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.
6.4.	Reference to other sections	
	See Heading 8. Exposure controls and personal protection.	


7.0 Handling and Storage		
7.1	Precautions for safe handling	
	Handling & Storage	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle and open the container with care. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
	Hygiene measures	Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.
7.2.	Conditions for safe storage, including any incompatibilities	
	Technical measures	Comply with applicable regulations.
	Storage conditions	Keep only in the original container in a cool, well ventilated place away from: incompatible materials. Keep container closed when not in use.

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	Incompatible products	Strong bases. Strong acids.
	Incompatible materials	Sources of ignition. Direct sunlight
	Storage temperature	5 - 30 °C
	Heat-ignition	KEEP SUBSTANCE AWAY FROM: heat sources.
	Prohibitions on mixed storage	KEEP SUBSTANCE AWAY FROM: combustible materials. strong acids. metals.
	Storage area	Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Protect against frost. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.
	Special rules on packaging	SPECIAL REQUIREMENTS: hermetical. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packaging in solid containers.
	Packaging materials	SUITABLE MATERIAL: stainless steel. nickel. polyethylene. polypropylene. glass. stoneware/porcelain. MATERIAL TO AVOID: lead. aluminum. copper. tin. zinc. bronze.

8.0 Exposure Controls/Personal Protection		
8.1. Control parameters		
Sodium Hydroxide, 30% w/w (1310-73-2)		
OSHA	OSHA PEL (TWA) (mg/m ³)	2 mg/m ³
IDLH	US IDLH (mg/m ³)	10 mg/m ³
NIOSH	NIOSH REL (ceiling) (mg/m ³)	2 mg/m ³
Water (7732-18-5)		
Not applicable		
8.2	Appropriate engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.
8.3.	Individual protection measures/Personal protective equipment	<p>Protective goggles. Gloves. Protective clothing. Face shield.</p> <p>Materials for protective clothing: GIVE EXCELLENT RESISTANCE: nitrile rubber. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: chlorinated polyethylene. styrene-butadiene rubber. nitrile rubber/PVC. GIVE POOR RESISTANCE: PVA. natural fibers</p> <p>Hand protection: Wear protective gloves. Eye protection: Chemical goggles or face shield. Face shield</p> <p>Skin and body protection: Corrosion-proof clothing</p> <p>Respiratory protection: Wear gas mask with filter type B if conc. in air > exposure limit</p> <p>Other information: Do not eat, drink, or smoke during use.</p> <div>     </div>


9.0 Physical and Chemical Properties	
9.1. Information on basic physical and chemical properties	
Physical state	Liquid
Appearance	Clear, colorless liquid.
Color	Colorless
Odor	Odorless
Odor threshold	No data available
pH	≥ 14
pH solution	8 %
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	Not applicable
Relative evaporation rate (buty acetate=1)	No data available

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Flammability (solid, gas)	Non-flammable
Vapor pressure	No data available
Relative vapor density at 20 °C	No data available
Relative density	No data available
Specific gravity / density	1.26 g/ml
Solubility	No data available
Log Pow	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Viscosity, kinematic	5.6 cSt
Viscosity, dynamic	No data available
Explosion limits	No data available
Explosive properties	Not applicable
Oxidizing properties	None
9.2. Other information	
Minimum ignition energy	Not applicable
VOC content	Not applicable (inorganic)
Other properties	Clear. Hygroscopic. Slightly volatile. Substance has basic reaction.


10.0 Stability and Reactivity	
10.1.	Reactivity
Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). Thermal decomposition generates: Corrosive vapors.	
10.2.	Chemical stability
Stable under normal conditions.	
10.3.	Possibility of hazardous reactions
Not established.	
10.4	Conditions to avoid
Direct sunlight. Extremely high or low temperatures. Incompatible materials.	
10.5.	Incompatible materials
Strong acids. metals.	
10.6.	Hazardous decomposition products
Sodium oxide. Thermal decomposition generates: Corrosive vapors	

11.0 Toxicological Information	
Likely routes of exposure	Skin and eye contact
Acute toxicity	Not classified
Sodium Hydroxide (1310-73-2)	
LD50 dermal rabbit	5675 mg/kg
ATE US (dermal)	6750 mg/kg body weight
Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000 mg/kg body weight
Skin corrosion/irritation	Causes severe skin burns and eye damage. pH: 14 (8 %)
Serious eye damage/irritation	Causes serious eye damage. pH: 14 (8 %)

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Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
Carcinogenicity	Not classified
Reproductive toxicity	Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity – single exposure	Not classified
Specific target organ toxicity – repeated exposure	Not classified
Aspiration hazard	Not classified
Potential Adverse human health effects and symptoms	Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation	Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	Corrosion of the eye tissue. Permanent eye damage. Causes serious eye damage.
Symptoms/effects after ingestion	Abdominal pain. Bleeding of the gastrointestinal tract. Burns to the gastric/intestinal mucosa. Nausea. Possible esophageal perforation.
Chronic symptoms	Not available.


12.0 Ecological Information	
12.1. Toxicity	
Ecology - general	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - water	Toxic to aquatic life.
Sodium Hydroxide (1310-73-2)	
LC50 fish 1	45.4 mg/l (Other, 96 h, Salmo gairdneri, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	40.4 mg/l (Other, 48 h, Ceriodaphnia sp., Experimental value)
12.2. Persistence and degradability	
Sodium Hydroxide, 30% w/v (1310-73-2)	
Persistence and degradability	No data available.
Sodium Hydroxide (1310-73-2)	
Persistence and degradability	Biodegradability: not applicable. No test data on mobility of the substance available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
Water (7732-18-5)	
Persistence and degradability	Not established.
12.3. Bio accumulative potential	
Sodium Hydroxide, 50% w/w (1310-73-2)	
Bio accumulative potential	Does not contain bio accumulative component(s).

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Sodium Hydroxide (1310-73-2)	
Bio accumulative potential	No bioaccumulation data available.
Water (7732-18-5)	
Bio accumulative potential	Not established.
12.4. Mobility in soil	
No additional information available	
12.5. Other adverse effects	
Other information: Avoid release to the environment.	

13.0 Disposal Considerations	
13.1	Waste disposal recommendations: Dispose of contents/container to comply with local, state and federal regulations. Dispose in a safe manner in accordance with local/national regulations. Ecology - waste materials: Avoid release to the environment.

14.0 Transport Information	
Department of Transportation (DOT) In accordance with DOT	
Transport document description	: UN1824 Sodium hydroxide solution, 8, II
UN-No.(DOT)	: UN1824
Proper Shipping Name (DOT)	: Sodium hydroxide solution
Transport hazard class(es) (DOT)	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT)	: II - Medium Danger
Hazard labels (DOT)	: 8 - Corrosive
	
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Special Provisions (49 CFR 172.102)	: B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees

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Celsius of the liquid during filling, and α is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (t_f) and the maximum mean bulk temperature during transportation (t_r) both in degrees Celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d_{15} and d_{50} are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx)	: 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location a cargo vessel and on a passenger vessel.	: A - The material may be stowed "on deck" or "under deck"
DOT Vessel Stowage Other	: 52 - Stow "separated from" acids
Other information	: No supplementary information available.

15.0 Regulatory Information


Sodium Hydroxide, 30% w/w (1310-73-2)	
All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
Sodium Hydroxide (1310-73-2)	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
15.2. US State regulations	
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm	

16.0 Other Information

16.1	Packing	Intermediate Bulk Containers (IBC's) and Rubber Lined /Epoxy (Vinyl Ester) coated Tankers
16.2	Disclaimer	Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representation as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Everyone should make a determination as to the suitability of the information for their particular purpose(s)

Full text of H-Phrases

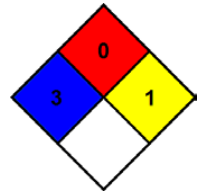
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H402	Harmful to aquatic life

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NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.
Hazard Rating



Health : 3 Serious Hazard - Major injury likely unless prompt action is taken, and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : D
D - Face shield and eye protection, Gloves, Synthetic apron

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.