SECTION 1 - IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: CAUSTIC SODA

CAS #: 1310-73-2

Formula: NaOH

Chemical name: SODIUM HYDROXIDE

Product Use: In rayon, In pulp, textile, rubber, Aluminium and food industry, petroleum industry,In manufacturing of soaps and detergents, and in water treatment. There is no specific information on the use not recommended.

Supplier: Mehrarad Energy Development Co. (Pureicals Brand)

Address: No. 7, Dashteestan 2nd, Pasdaran Street, Tehran, Iran

Emergency phone: +98 21-91200139

www.puricals.com

info@puricals.com

SECTION 2 – HAZARD IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Skin Corr. 1A - H314 Eye Dam. 1 - H318
Environmental hazards	Not Classified

2.2. Label elements

EC number	215-185-5
Hazard pictograms	

Signal word	Danger
Hazard statements	H314 Causes severe skin burns and eye damage.
Precautionary statements	P260 Do not breathe vapor/ spray. 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 or 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. P405 Store locked up. P501 Dispose of contents/ container in accordance with national regulations.

Contains sodium hydroxide

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

3.2. Mixtures

Sodium hydroxide	**47-48**
CAS number: 1310-73-2	EC number: 215-185-5
Classification Skin Corr. 1A - H314 Eye Dam. 1 - H318	

The full text for all hazard statements is displayed in Section 16.

SECTION 4 – FIRST AID MEASURES

4.1. Description of first aid measures

General information Get medical attention immediately. Show this Safety Data Sheet to the medical personnel. Chemical burns must be treated by a physician.

Inhalation Remove the affected person from the source of contamination. Move the affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, or belt. When breathing is difficult, properly trained personnel may assist an affected person by administering oxygen. Place the unconscious person on their side in the recovery position and ensure breathing can take place.

Ingestion Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick

as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move the affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place the unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as a collar, tie, or belt.

Skin contact — It is important to remove the substance from the skin immediately. Take off immediately all contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical burns must be treated by a physician.

Eye contact — Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.

Protection of first aiders — First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

4.2. Most important symptoms and effects, both acute and delayed

General information — See Section 11 for additional information on health hazards. The severity of the symptoms described will vary depending on the concentration and the length of exposure.

Inhalation — A single exposure may cause the following adverse effects: Severe irritation of the nose and throat. Symptoms following overexposure may include the following: Corrosive to the respiratory tract.

Ingestion — May cause chemical burns in the mouth, esophagus, and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.

Skin contact — Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.

Eye contact — Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically

SECTION 5 – FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder, or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use a water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapors.

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes, and smoke. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If a risk of water pollution occurs, notify the appropriate authorities.

Special protective equipment for firefighters Regular protection may not be safe. Wear a chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots, and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment, and emergency procedures

Personal precautions No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in

Section 8 of this safety data sheet. Use protective glasses, neoprene gloves, rubber boots, and a special breathing apparatus. Follow the precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Avoid inhalation of vapors and spray/mists. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes. Avoid contact with contaminated tools and objects.

6.2. Environmental precautions

Environmental precautions The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms. Avoid discharge to the aquatic environment. It should be isolated to prevent contamination of soil and surface water.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. This product is corrosive. Small Spillages: Collect spillage. Large Spillages: Absorb spillage with non-combustible, absorbent material. The contaminated absorbent may pose the same hazard as the spilled material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove them from the area as soon as possible. Flush contaminated area with plenty of water. Send wash water to the treatment plant. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7 – HANDLING AND STORAGE

7.1. Precautions for safe handling

Usage precautions Read and follow the manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data

sheet. Keep away from food, drink, and animal feeding stuff. Handle all packages and containers carefully to minimize spills. Keep the container tightly sealed when not in use. Avoid the formation of mists. This product is corrosive. Immediate first aid is imperative. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers. Since it is very strong alkaline, be very careful during loading, and unloading and use and follow special instructions. Check that the lid of filled containers is closed before moving them. Open the packaging very carefully. Always take protective measures such as glasses and gloves during use.

Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink, or smoke when using this product. Wash at the end of each work shift and before eating, smoking, and using the toilet. Change work clothing daily before leaving the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Boiling point: 136- 137°C Crystallization point (% 50) : 9 C Storage temperatures: Stores must be heated by steam under 18 C. The temperature range must be between 29 – 38 C. It creates corrosion and iron rust occurs above this temperature. The substance is hygroscopic and carbonate is formed together with moisture and carbon dioxide in contact with air. Surroundings must be well-ventilated when it is stored in the closed area. Store away from incompatible materials (see Section 10). Store locked up. Keep only in the original container. Keep the container tightly closed, in a cool, well-ventilated place. Keep containers upright. Protect containers from damage. Bund storage facilities to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless, and not absorbent. Carbon steel barrels are transported by land and sea tankers. They should be kept away from metals, flammable liquids, and organic halogens.

Storage class

Corrosive storage.

Shelf life

2 years

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters
Occupational exposure limits
Sodium hydroxide
Short-term exposure limit (15-minute): WEL 2 mg/m³
WEL = Workplace Exposure Limit

8.2. Exposure controls
Protective equipment

Appropriate engineering controls	Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure. To prevent the risk of exceeding the occupational exposure limit values of the product, it must be ensured that the work environment is very well-ventilated and cleaned. In necessary areas, an air filtration system must be installed by NIOSH and CEN systems. The area of use must be designed to prevent the product from contaminating the environment.
Personal protection	The product is corrosive. Direct contact with the skin or eyes should be avoided as this may cause severe burns. Avoid inhalation of vapours. Use only in well-ventilated areas. Remove contaminated clothing immediately. Hands should be washed at the end of work and at work. Do not eat or drink any food when using this substance.
Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European

	Standard EN166. Wear tight-fitting, chemical splash goggles or face shields. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374. Hand contact should be prevented by wearing leak-proof, rubber, alkali-resistant, PVC or neoprene gloves that comply with TS/EN 374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible. Appropriate protective clothing, overalls and rubber boots that cover the entire body should be worn.
Hygiene measures	Provide an eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.
Respiratory protection	Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. If the concentration in the air is above the TLV limits, the use of a mask is required. High-efficiency special-type masks are required for concentrations up to 100 ppm. Above this level, a respirator should be used. Ensure all respiratory protective equipment is suitable for its intended use and is ‘CE’-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full-face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half-mask and quarter-mask respirators with replaceable filter cartridges should comply with European Standard EN140.
Environmental exposure controls	Keep the container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental

Protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Obligations under existing legislation for the protection of the environment must be fully fulfilled.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless
Odor	Odorless.
pH	14 at 20°C
Melting point	+9 °C
Initial boiling point and range	137°C
Flash point	Not applicable.
Flammability (solid, gas)	Not applicable.
Vapor pressure	<2,4
Bulk density	1,500-1,512 kg/m³
Solubility(ies)	Miscible with water
Explosive properties	Not applicable
9.2. Other information **Molecular weight**	40,01 gr/grmol

SECTION 10 – STABILITY AND REACTIVITY

10.1. Reactivity **Reactivity**	See the other subsections of this section for further details.
10.2. Chemical stability **Stability**	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
10.3. Possibility of hazardous reactions **Possibility of hazardous reactions**	No potentially hazardous reactions known.

10.4. Conditions to avoid **Conditions to avoid**	There are no known conditions that are likely to result in a hazardous situation.
10.5. Incompatible materials **Materials to avoid**	No specific material or group of materials is likely to react with the product to produce a hazardous situation.
10.6. Hazardous decomposition products **Hazardous decomposition products**	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Corrosive gases or vapors.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity - oral **Notes (oral LD_{50})**	Based on available data the classification criteria are not met.
Acute toxicity **dermal Notes (dermal LD_{50})**	Based on available data the classification criteria are not met.
Acute toxicity – inhalation **Notes (inhalation LC_{50})**	Based on available data the classification criteria are not met.
Skin corrosion/irritation **Animal data**	Skin Corr. 1A - H314 Causes severe burns.
Serious eye damage/irritation **Serious eye damage/irritation**	Eye Dam. 1 - H318 Corrosive to skin. Corrosivity to eyes is assumed.
Respiratory sensitization **Respiratory sensitization**	Based on available data the classification criteria are not met
Skin sensitization **Skin sensitization**	Based on available data the classification criteria are not met.
Germ cell mutagenicity **Genotoxicity - in vitro**	Based on available data the classification criteria are not met.
Carcinogenicity **Carcinogenicity**	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed or exempt.

Reproductive toxicity **Reproductive toxicity – fertility**	Based on available data the classification criteria are not met.
Reproductive toxicity - Development	Based on available data the classification criteria are not met.
Specific target organ toxicity - single exposure **STOT - single exposure**	Not classified as a specific target organ toxicant after a single exposure.
Specific target organ toxicity - repeated exposure **STOT - repeated exposure**	Not classified as a specific target organ toxicant after repeated exposure
Aspiration hazard **Aspiration hazard**	Based on available data the classification criteria are not met.
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Corrosive to the respiratory tract. Symptoms following overexposure may include the following: Severe irritation of the nose and throat.
Ingestion	Chemical burns in the mouth, esophagus, and stomach may result from overexposure. Symptoms may include severe stomach pain, nausea, and vomiting.
Skin contact	Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.
Eye contact	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs **AçıklamalarExplanations**	No specific target organs are known.

SECTION 12 – ECOL OGICAL INFORMATION

Ecotoxicity	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity Based on available data the classification criteria are not met.

Acute aquatic toxicity

Acute toxicity - fish	LC_{50}, 96 hours: 125 mg/l, Freshwater fish
Acute toxicity - aquatic invertebrates	EC_0, 48 hours: 100 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability	The degradability of the product is not known.

12.3. Bioaccumulative potential

Bioaccumulative potential	No data is available on bioaccumulation.

12.4. Mobility in soil

Mobility	No data available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of safely. Disposal of this product, process solutions, residues, and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applied to the handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.
Disposal methods	Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes, and contaminated cleaning materials should be collected in designated containers, and labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1824
UN No. (IMDG)	1824
UN No. (ICAO)	1824
UN No. (ADN)	1824

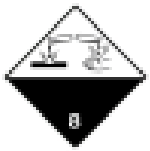
14.2. UN proper shipping name

Proper shipping name (ADR/RID)	SODIUM HYDROXIDE SOLUTION
Proper shipping name (IMDG)	SODIUM HYDROXIDE SOLUTION
Proper shipping name (ICAO)	SODIUM HYDROXIDE SOLUTION
Proper shipping name (ADN)	SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class (es)

ADR/RID class	8
ADR/RID classification code	C5
ADR/RID label	8
IMDG class	8
ICAO class/division	8
ADN class	8

Transport labels



14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ICAO packing group	II
ADN packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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EmS	F-A, S-B
ADR transport category	2
Emergency Action Code	2R
Hazard Identification Number(ADR/RID)	80
Tunnel restriction code	(E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15 – Regulatory information

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

National regulations

Health and Safety at Work etc. Act 1974 (as amended).

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment

Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].

EH40/2005 Workplace exposure limits.

EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18

December 2006 concerning the Registration, Evaluation, Authorization and Restriction of

Chemicals (REACH) (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

SECTION 16 – REGULATORY INFORMATION

Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate. LC_{50}: Lethal Concentration to 50 % of a test population. LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose). EC_{50}: 50% of maximal Effective Concentration. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
Classification abbreviations and acronyms	Eye Dam. = Serious eye damage Skin Corr. = Skin corrosion
Classification procedures according to Regulation (EC) 1272/2008	Eye Dam. 1 - H318: Skin Corr. 1A - H314: : Calculation method.
Training advice	Read and follow the manufacturer's recommendations. Only trained personnel should use this material.
Issued by	İrem ELİTEZ- irem.elitez@koruma.com
Revision date	01/07/2020
Revision	09
Supersedes date	30/06/2016
SDS number	DD.44.15
Hazard statements in full	H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage.

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