MATERIAL SAFETY DATA SHEET

Date: June 12, 2015

Part 1: Chemical Product and Company Identification

Product Name: High Purity Sodium Hydroxide

Synonym: Liquid Caustic Soda, Soda Lye Sodium Hydrate, White Caustic

Company Name:

Post Code:

Email Address: admin@nearchemical.cn

Tel:

Fax Number:

Emergency Telephone Number:

MSDS No.:

Product recommended application

Widely used by polluted water treatment agent, basic analytical reagent,standard caustic liquid for preparation analysis, absorbent for small traces of CO_2 and water and the manufacture of neutralized sodium salt of acid. Regent for manufacturing other hydroxyl ions, also other important usage in the aspect of paper making, dyeing, wastewater treatment, electroplating and chemical drilling.

Product Restriction: No data

Part 2: Hazard Identification

Physical and Chemical Hazard

Neutralization reaction happens and release heat when meet with acid. Corrosive to Aluminum, Zinc and Tin and releases inflammable and explosive hydrogen. It can not be burned and has strong corrosion.

Health Hazard

Its strong irritation and corrosion may hazard eye, skin or respiratory tract. Inhalation of vapors may result in cough, scratchy sore throats, burn and shor t of breath; If you touch it,it will cause skin flushing, paining and blistering; e ye contact may cause eye burned, redness, paining and blurred vision; Inhaling: if accidental poisoning, it will cause mouth, throat and chest burned, stomach ache, nausea, vomiting and shock.

Environment Hazard

Hazard to environment, it may pollute water, earth or atmosphere.

GHS Risk Category

According to *Public General Rules of Classification and Hazard of Chemi cals(GB 13690-2009)* and *series of standards about Chemicals classification,Wa rning Label and cautionary specification*, the product can be classified into *cor rosive to metals:* Category I Skin corrosion/irritation；Category 1A ： Severe ey e damage/eye irritation，Category I；Specific target organ systemic toxicity sing le-contact, Category 1.

Label Element

- **Pictogram**

- **Risk Phrase:** Dangerous

Dangerous Information

It’s metal corrosive which burn skin severely and damage eyes , one cont act can damage digestive system and respiratory system.

Precautionary Statement

Preventive Measures

Liquid caustic soda shall be enclosed operated and ventilation shall be noted. Operators must be specially trained to read and understand all the precautions. Use personal protective equipment accordingly. Follow the operating rules strictly. Operators shall wear non-powered air-purifying respirators (full face mask), anti-acid and alkali rubber clothing and gloves. Light loading and unloading to prevent damage of packaging and container. Avoid contacting with eyes and skin, avoid inhalation and ingestion. Clean thoroughly after operation. Eating or drinking is strictly prohibited during the operation. Alkali shall be added to water in case of boiling or splashing when diluting the solution. Avoid contact with acids, amphoteric metals, etc. The storage area should be equipped with emergency equipments for leakage in case that containers may have a residues.

Accidence Response

If there is a fire, choose the appropriate extinguishing agent according to the specific ignition material. Skin exposure:Immediately remove the contaminated clothing and use 2% boric acid solution or plenty of water. Eye contact: immediately filed eyelid accidentally gets in the eyes with plenty of water rinse,serious hospital for treatment.Inhalation: quickly disengage from the scene to fresh air. Keep airway clear. If breathing is difficult, give oxygen. If breathing stops, do artificial respiration immediately and seek medical treatment. Eat: gargle with water, and drink milk or egg whites. Go to a doctor. The contaminated clothing should be cleaned and reused.

Safe Storage

Keep container tightly closed. Store in a cool, dry and ventilated warehouse. It is forbidden to mix with acid and amphoteric metal.

Disposal

Treatment and neutralization in specified processing plants if it can be recycled. Filter out solids and bury them as hazardous waste in specified places.

Part 3: Composition/Information on Ingredients

Substance ☼ Mixture □

Hazardous Component	Content,%	CAS NO.
Sodium Hydroxide	≥32	1310-73-2

Part 4: Emergency Treatment

Skin Contact

Remove contaminated clothing, rinse skin thoroughly with plenty of water and seek medical advice.

Eye contact

Lift the eyelids, rinse with running water or saline and seek medical advic e.

Inhalation

Flee from the scene outdoors. If breathing is difficult, give oxygen. If bre athing stops, give artificial respiration immediately and seek medical advice.

Ingestion

Gargle with water, drink milk or egg white and seek medical advice.

Acute and Delayed Effects&Main Symptoms

Inhalation of steam can cause cough, sore throat, burn, shortness of breat h. Direct skin contact can cause burns, skin redness, pain, blistering. Eye conta ct causes severe burns, red eyes, pain, and blurred vision. It can cause burns t o the mouth and throat, abdominal pain, throat and chest burning, nausea, vom iting, and shock.

Advice to Protect Rescuers

Should wear air or oxygen respirator when enter the scene of the acciden t.

Doctor's Orders: If the above harm occurs, the rescuer should give first aid t

o the patient according to the above first aid measures, and seek medical advi ce in time.

Part 5: Fire Protection Measures

Extinguishing Method and Fire Extinguishing Agents

This product is non-flammable, select the appropriate fire extinguishing ag ent according to the specific fire material.

Special Hazards

This product is non-flammable, corrosive, harmful to humans. In case of h igh fever can be decomposed release Toxic corrosive smoke can be decompose d when meet with high heat. Strong acid can react violently and release a lot of heat.

Special Fire Fighting Methods

This product is non-flammable.

Protective Equipment for Fire Protection Personnel

Fire-fighting personnel must wear a full-body fire-proof suit and put out t he fire upwind and wear chin style gas mask. Protect fire fighters with mist.

Part 6: Contingency Response When Release

Personnel Protection Measures&Protective Equipment&Emergency Procedur es:

Try to cut off the leak contaminated areas evacuated personnel to a safe area, and isolation and strict restrictions on access. Recommend emergency pers onnel wearing self-contained positive pressure respirator, wear anti-acid coverall s. Do not touch the spill directly.

Environmental Protection Measures

Prevent the flow of restricted space such as sewers and drainage channels.

Disposal Materials for Receiving&Cleaning the Leakage of Chemicals

Small leakage: absorption of sand, vermiculite or other inert materials.

Massive leakage: build a dike or dig a pit. Cover with foam and reduce s team hazards. Use the pump to transfer to the tank car or the special collector for recycling or transportation to the waste disposal site.

Part 7: Handling and Storage

Operation Cautions

Closed operation. Operators must be specially trained to strictly observe o perating procedures.The operator is recommended to wear the head cover type electric air supply filter respirator, wear rubber acid-proof clothing, wear rubber acid and alkali gloves. Avoid contact with acids, amphoteric metals, etc. Preve nt packaging and container damage. Equipped with leakage emergency treatme nt equipment. Empty containers may have a residue. When the solution is dilut ed or prepared, the alkali should be added to the water to avoid boiling and s plashing.

Storage Note

Stored in a cool, dry, well-ventilated warehouse. Keep away from fire and heat. The humidity in the reservoir should not be greater than 85%. The packing must be sealed, not damp. It should be stored separately from acid and ampho teric metal. The storage area shall be equipped with suitable materials for recei ving the leakage.

Part 8: Exposure Controls and Individual Protection

Occupational Exposure Limits: MAC (mg/m³）：2

Monitoring Method: Flame photometry.

Biological Limits: Not available.

Monitoring Method: Not available.

Engineering Control: airtight production process, full ventilation. Provide safet y shower and eye wash equipment.

Respiratory Protection: In a high concentration environment, a direct gas mas

k (half face mask) should be worn. If you are exposed to steam or smoke, you must wear a hood type electric air supply filter respirator. Wear air breathing apparatus when necessary.

Eye Protection: Wear safety glasses.

Skin and Body Protection: Wear anti-corrosion overalls.

Hand Protection: Wear rubber acid-base gloves.

Other Protection: Smoking, eating and drinking are prohibited at work. take a shower and change clothes after work. Store clothes contaminated with poison and wash them in reserve. Maintain good hygiene.

Part 9: The Physical and Chemical Characteristics

Appearance and Properties: colorless and transparent liquid

PH Value: Strongly caustic

Melting point/Freezing point (°C): 318.4 (NaOH content≥99.5%)

Relative density (water=1): 2.12

Boiling point, initial boiling point and boiling range (°C): 1390 (NaOH Content ≥99.5%)

Relative vapor density (air=1): Not available.

Saturated vapor pressure (KPa, 20°C): 0.13 (739°C)

Heat of combustion (KJ/mol): meaningless.

Critical temperature (°C): Not available.

Critical pressure (MPa): No data available.

Logarithm of octanol/water partition coefficient: Not available.

Flash point (°C): meaningless.

Upper explosion limit% (V/V): Not available.

Auto-ignition temperature (°C): Not available.

Lower explosion limit% (V/V): Not available.

Odor threshold: Not available.

Decomposition temperature (°C): Not available.

Solubility: soluble in water, ethanol, glycerol, insoluble in acetone.

Part 10: Stability and Reactivity

Stability: stable

Hazardous Reactions

React with acid and heat it up. Corrosive to aluminum, zinc and tin, and to emit flammable and explosive hydrogen.

Conditions to Avoid: humid air (air contains carbon dioxide).

Incompatible Materials: acids, amphoteric metals.

Hazardous Decomposition Products: May produce harmful toxic smoke.

Intended Use: Waste-water treatment agents, basic analytical reagents, preparation and analysis of standard lye, a small amount of carbon dioxide and water absorption, acid and sodium salt manufacturing. Making other reagents containing hydroxide ions; It has important applications in paper-making, printing and dyeing, waste-water treatment, electroplating and chemical drilling.

Predictable Error Uses: This product is industrial sodium hydroxide, can not be used as food grade.

Part 11: Toxicological Information

Acute Toxicity: No information available.

Skin Irritation or Corrosion

This product is a strong base of high concentrations of aqueous solution, with strong alkaline, the skin can be made serious corrosion and damage.

Eye Irritation or Corrosion: This product is a strong base of high concentrations of aqueous solution, with strong alkaline, caused by the eyes can be serious damage.

Respiratory or Skin Sensitization: No information available.

Germ Cell Mutagenicity: Not available.

Carcinogenicity: IARC carcinogenicity commentary, available evidence can not be classified as human carcinogenicity.

Reproductive Toxicity: Not available.

Specific Target Organ Toxicity-Single Exposure: One exposure may cause dig estive, respiratory, system damage.

Specific Target Organ Toxicity-Repeated Exposure: No information available.

Aspiration Hazard: Upper respiratory tract irritation.

Part 12：Ecological Information

Ecotoxicity: EC_{50}: 40mg/L (crustacean, 48h) (solid base).

Biodegradability: It is hard to be biodegraded in water environment

Non-biodegradability: Hydrolysis and oxidative degradation can occur

Bio concentration or Bio accumulation: it may be adsorbed by hydrolysates or oxidative deposits

Other harmful effects: Due to its alkalinity, it can cause pollution to water b odies, and special attention should be paid to plants and aquatic organisms.

Part 13：Disposal Considerations

Methods of Waste Disposal

- **Product**

After treatment and neutralization in the specified treatment plant, dilute a nd pour into the waste water system.

- **Dirty packing**

After thorough cleaning with a large amount of water, the waste water aft er cleaning is neutralized and treated back into the wastewater system.

Part 14：Transport Information

United Nations Dangerous Goods Code (UN): 1824.

UN Proper Shipping Name: Sodium hydroxide solution.

UN Risk Classification: categories 8

Packaging Logo: corrosive substances.

Packaging Categories: II category.

Packaging Method: steel tank or iron tank truck;

Marine Pollutants: yes.

Transport Notes: The transport vehicle shall have a dangerous cargo transport sign and a satellite positioning device with a driving record function. Without the approval of the public security organ, the transport vehicle shall not enter the restricted area of the dangerous chemical transport vehicle. The packing should be complete when shipment, and the loading should be safe. During transportation, make sure that the container does not leak, does not collapse, does not fall, does not damage. It is forbidden to mix with acid and amphoteric metal. Transport vehicles should be equipped with emergency handling equipment. Road transport should follow the prescribed route, do not stay in residential areas and densely populated areas.

Part 15: Regulatory Information

Regulatory Information

The following laws and regulations and standards are applicable to the safe use, storage, transportation, handling, classification and marking of chemicals: *Production safety law of the People's Republic of China*" (the 70th order of the chairman of the People's Republic of China on June 29, 2002), *the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases, the Hazardous Chemical Materials Safety Management Regulations*(approved at the 144th executive conference of the state council on feb. 16,2011, and effective from Dec. 1,2011), *Regulations of safety use to chemicals in public*(423th order of ministry labour<1996>),*Methods for Registration of Hazardous Chemicals, Series of Standards about Chemicals Classification, Warning Label and Cautionary Specification*(GB 20576-2006～GB 20602-2006，GB

20600-2006 is not included). *List of Hazardous Chemicals* (2002 Edition): Liste d, classifies this substance as alkaline corrosion in Class 8.2. Not included in *Toxic Chemicals Directory. List of Dangerous Goods Name*" (GB 12268-2012): included, the substance is classified as Class 8 corrosive substances.

Part 16：Other Information

Filling time: June 06, 2013

Filling Department:

Modify instructions

This SDS has been prepared in accordance with the national standard "Safety Data Sheet for Chemical Safety and Project Sequence" (GB/T 16483-2008). Since the current national GHS classification of chemicals has not yet been issued, the GHS classification of chemicals in this SDS is based on the national standard"Chemical Classification and Hazard Communication (GB 13690-2009) and classification, precautionary labeling and precautionary statements specified in the series of chemical safety standards (GB 20576-20602-2006, excluding GB20600-2006) self-classification, Subject to the promulgation of the national chemical GHS classification list and then adjust accordingly.

Abbreviation Explanation

Maximum allowable concentration (MAC): The workplace, in a working day, at any time toxic chemicals should not exceed the concentration. IARC: Relating to the International Agency for Research on Cancer.