Section 1: Identification

MANUFACTURER: PACE Technologies
3601 E. 34th St.
Tucson, AZ 85713

INFORMATION PHONE: 520-882-6598

EMERGENCY PHONE: CHEMTREC 800-424-9300 (US) Day or night

Customer No. 16568

TRADE NAME: Sodium Hydroxide solution

CHEMICAL FAMILY: Etchant

HMIS RATING: HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 1

HAZARD RATING:

LEAST: 0 SLIGHT: 1 MODERATE: 2 HIGH: 3 EXTREME: 4

Section 2: Hazard(s) Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)	Skin corrosion (Category 1A), H314 Serious eye damage (Category 1), H318 Acute aquatic toxicity (Category 3), H402 Chronic aquatic toxicity (Category 3), H412
PICTOGRAM(s):	
SIGNAL WORD:	Danger
HAZARD STATEMENTS:	**Hazard Statement(s):** H314- Causes severe skin burns and eye damage H318 - Causes serious eye damage H402- Harmful to aquatic life H412- Harmful to aquatic life with long lasting effects
PRECAUTIONARY STATEMENTS:	**Precautionary Statement(s):** **Preventions:** P260- Do not breathe dust/fume/gas/mist/vapors/spray.

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	P264- Wash skin thoroughly after handling. P273- Avoid release to the environment. P280- Wear protective gloves/protective clothing/eye protection/face protection. **Response:** P301+P330+P331- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304+P340- IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing. 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. P321- Specific treatment (see Section 4 SDS). P391- Collect spillage. Hazardous to the aquatic environment. **Storage:** P405- Store locked up. **Disposal:** P501- Dispose of contents/container to Federal, State and Local Regulations.

EYES:	Sodium Hydroxide: Corrosive! May cause irritation of eyes, and with greater exposures, severe burns with possibly blindness resulting.
SKIN CONTACT:	Can be corrosive to skin. May cause irritation.
INHALATION:	Mists are irritants to respiratory tract.
INGESTION:	Corrosive. Swallowing may cause burns of the mouth, throat and stomach.
CHRONIC EXPOSURE:	Prolonged contact can dehydrate and remove oils from skin.
AGGRAVATION OF PRE-EXISTING CONDITONS:	Persons with pre-existing skin disorders may be susceptible to these solutions.

Section 3: Composition/Information on Ingredients

CHEMICAL	APPROX %	CAS Number
Sodium hydroxide	5-15%	1310-73-2

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Water	85-95%	7732-18-5

Section 4: First-Aid Measures

EYES: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

INGESTION: DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

NOTES TO PHYSICIAN: Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

Section 5: Fire-Fighting Measures

Fire: Not considered to be a fire hazard.

Explosion: Not considered to be an explosion hazard.

EXTINGUISHING MEDIA: Use any means suitable for extinguishing surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Use protective clothing and breathing equipment appropriate for the surrounding fire.

Section 6: Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

Section 7: Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and alkalis. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Protect from freezing.

Section 8: Exposure Controls/ Personal Protection

Airborne Exposure Limits:
Sodium hydroxide:
-OSHA Permissible Exposure Limit (PEL):
2 mg/m3 Ceiling
-ACGIH Threshold Limit Value (TLV):
2 mg/m3 Ceiling

PERSONAL RESPIRATORS (NIOSH Approved):	Not expected to require personal respirator usage. If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positivepressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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VENTILATION:	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
SKIN PROTECTION:	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
EYE PROTECTION:	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9: Physical and Chemical Properties

Appearance:
Clear, colorless solution.
Odor:
Odorless.
Solubility:
Miscible in water.
Density:
1.0-1.05
pH:
12 - 13 (0.01N-0.2N)
% Volatiles by volume @ 21C (70F):
> 90 (as water)
Boiling Point:
ca. 100C (ca. 212F)
Melting Point:
ca. 0C (ca. 32F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):

No information found.

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Section 10: Stability and Reactivity

Will not occur.

Incompatibilities:

Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may causes
violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive
salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas.
Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of
personnel before vessel entry.

Conditions to Avoid:

Heat, incompatibles.

STABILITY:	Stable under ordinary conditions of use and storage.
INCOMPATIBILITY (CONDITIONS TO AVOID):	Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may causes violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel before vessel entry.
DECOMPOSITION PRODUCTS:	Will not occur.
HAZARDOUS POLYMERIZATION	Will not occur.
CONDITIONS TO AVOID	Heat, incompatibles.

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Section 11: Toxicological Information

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Sodium Hydroxide (1310-73-2)	No	No	None
Water (7732-18-5)	No	No	None

Section 12: Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:

No information found.

Section 13: Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transportation Information

DOT: Not regulated

IMDG: Not regulated

ICAO/IATA: Not regulated

Section 15: Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

-------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes

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Water (7732-18-5)	Yes	Yes	No	Yes

Ingredient	-SARA 302- RQ	TPQ	------SARA 313----- List	Chemical Catg.
Sodium Hydroxide (1310-73-2)	No	No	No	No
Water (7732-18-5)	No	No	No	No

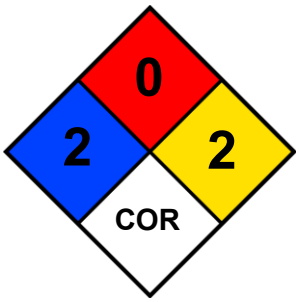
Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Sodium Hydroxide (1310-73-2)	1000	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Liquid)

Australian Hazchem Code: None allocated
Poison Schedule: None allocated
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16: Other Information

16.1 NFPA 704



Top, Flammability: 2 – Moderate Hazard

Left, Health Hazard: 0 – Minimal Hazard

Right, Reactivity: 2 – Moderate Hazard

Bottom, Special Notice: COR – Corrosive

Label First Aid:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water

for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use: Laboratory Reagent.

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