Harcros Chemicals Inc
Kansas City, Kansas

MATERIAL SAFETY DATA SHEET  Page 1

PRODUCT NAME : CAUSTIC SODA LIQ 50% DIAPERAGM
PRODUCT CODE : 04038
CAS #: 001310732
FORMULA: Na O H
CHEM. FAMILY: inorganic bases
CHEMICAL NAME AND SYNONYMS:
- Caustic Soda
- Liquid Caustic Soda
- Sodium Hydroxide
- Sodium Hydroxide Solution
- Lye Solution
- Soda Lye
- Liquid Alkali #4
- Liquid Alkali #4A
- Caustic Soda Liq 50% Purified
MSDS No. 000318 DETAIL 00112
SUPPLIERS NAME : Harcros Chemicals Inc.
5200 Speaker Road
Kansas City KS 66106-1095

SUPPLIERS PHONE NUMBER : 913-321-3131
TRANSPORTATION EMERGENCY PHONE NUMBER : 1-800-424-9300

S.A.R.A. INFORMATION
HAZARDS : Acute Reactivity Chronic
PHYSICAL DATA : Mixture Liquid

SECTION I  HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>MAX W/W</th>
<th>SARA APPLIES</th>
<th>TWA/TLV (ppm)</th>
<th>STEL (ppm)</th>
<th>CEIL (ppm)</th>
<th>SKIN AGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caustic Soda</td>
<td>50.0</td>
<td>Y N N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Hydroxide (CAS # 1310-73-2)</td>
<td>Y N N</td>
<td></td>
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</tr>
</tbody>
</table>

TWA/TLV 2 mg/m3 (Ceiling) OSHA/ACGIH

SECTION II  HEALTH HAZARDS

POTENTIAL EFFECTS OF EXPOSURE
HAZARD OVERVIEW: DANGER. CORROSIVE LIQUID. CAUSES BURNS. DESTROYS BODY TISSUES. EYES

Continued On Page 2
Eye contact with product may cause burns tissue destruction eye damage blindness
SKIN
Skin contact may cause burns tissue ulceration skin damage Effects may be delayed.
INHALATION
Inhalation may cause irritation nausea headache dizziness pain decreased breathing capacity
tissue destruction internal bleeding lung damage, damage to respiratory system chemical pneumonia
Aspiration (breathing) of liquid, mist, or vomitus (vomit) into lungs can cause aspiration (chemical) pneumonia, hemorrhaging (bleeding), lung damage, and even death. Symptoms
of aspiration pneumonia include coughing, labored breathing and bluish skin.
INGESTION
Ingestion may cause diarrhea vomiting burns tissue ulceration internal bleeding even death
TARGET ORGANS
OVEREXPOSURE MAY CAUSE DAMAGE TO,
DISORDERS OF, OR ADVERSELY AFFECT THE FOLLOWING SYSTEMS, FUNCTIONS, ORGANS: destruction of all
body tissues
FIRST AID
FIRST AID EYES
Immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids apart
to ensure flushing of entire surface. Call a physician.
FIRST AID SKIN
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated
clothing and shoes. Thoroughly clean clothing before reuse. Discard contaminated shoes and
contaminated leather articles. Call a physician.
FIRST AID INHALATION
Remove to fresh air. If not breathing give artificial respiration, preferably mouth to mouth. If
breathing is difficult give oxygen. Call a physician.
FIRST AID INGESTION
Do not induce vomiting. Rinse mouth with water. Dilute stomach contents by drinking water. If
vomiting occurs spontaneously, keep head below hips to prevent breathing vomit into lungs. Call
a physician immediately.
OTHER INFORMATION
ROUTES OF ENTRY
eye contact skin contact
OVEREXPOSURE MAY AGGRAVATE DISORDERS OF THE
skin lungs respiratory system
CARCINOGEN STATUS
No components, present in excess of 0.1% by weight are listed as carcinogens by IARC, NTP, or
OSHA.

SECTION III SPECIAL PROTECTION

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MATERIAL SAFETY DATA SHEET

PRODUCT NAME: CAUSTIC SODA LIQ 50% DIAPHRAGM
PRODUCT CODE: 04038

Date: 7-MAY-2002 08:39:03.39

SECTION III SPECIAL PROTECTION

PROTECTIVE EQUIPMENT
- PROTECTIVE EQUIPMENT EYES
- PROTECTIVE EQUIPMENT SKIN
- IMPERVIOUS GLOVES
- CLEAN BODY COVERING CLOTHING

PROTECTIVE EQUIPMENT INHALATION
- If exposure limits are exceeded, or if exposure may occur, use a NIOSH/MSHA respirator approved for your conditions of exposure. Refer to the most recent NIOSH publications concerning chemical hazards, or consult your safety equipment supplier. Respiratory protection programs must be in compliance with OSHA requirements in 29 CFR 1910.134. For emergencies, a NIOSH/MSHA approved positive pressure breathing apparatus should be readily available.

VENTILATION REQUIRED:
- Adequate ventilation is required to minimize exposure or to maintain exposure levels below OSHA/ACGIH requirements. Local mechanical ventilation may be required.

ADDITIONAL PROTECTIVE MEASURES
- Safety shower, eye wash fountain, and washing facilities should be readily available. In case of emergency or when dusting, misting, or splashing may occur, wear respiratory protection, eye protection, gloves, helmet, boots, and complete protective body covering.

SECTION IV FIRE & EXPLOSION HAZARD DATA

Flash Point (METHOD): > OR = N/A
Flammable Limits (% Volume in Air) UPPER: N/D Lower: N/D

HMIS Info
- Health: 3
- Fire: 0
- React: 2
- Special: X

EXTINGUISHING MEDIA
- Water fog foam carbon dioxide dry chemical media appropriate for surrounding fire

FIRE FIGHTING PROCEDURES
- Not considered a fire hazard. Prevent human exposure to fire, fumes, smoke, and products of combustion. Evacuate non essential personnel. Firefighters should wear full face, self contained breathing apparatus and impervious protective clothing. Do not use a direct stream of water.

UNUSUAL FIRE & EXPLOSION HAZARDS
- None currently known

SECTION V PHYSICAL DATA

Continued On Page 4
PRODUCT NAME: CAUSTIC SODA LIQ 50% DIAPHRAGM
PRODUCT CODE: 04038

SECTION V PHYSICAL DATA

Boiling Point: > OR = 289 deg. F
Freezing Point: 55 deg. F
Specific Gravity (H2O=1): > OR = 1.5400 @ 60 deg. F
Vapor Pressure (MM HG.): > OR = 6.300 @ 104 deg. F
Vapor Density (AIR=1): N/D
Evaporation Rate (NA =1): N/D
Solubility in Water: COMPLETE
Percent Volatile by Volume: > OR = 50.00
pH: aqueous approx. > OR = 13.000
Appearance: COLORLESS TO LIGHTLY COLORED LIQUID

Odor: NIL

SECTION VI REACTIVITY DATA

STABILITY
Stable
INCOMPATIBILITY
amphoteric metals halogenated hydrocarbons inorganic acids organic acids Avoid contact with amphoteric metals which include aluminum, copper, zinc, and brass. Contact with water will generate heat, cause violent splashing and scattering. Contact with some metals can generate explosive hydrogen gas.
HAZARDOUS POLYMERIZATION
Will not occur

SECTION VII SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Evacuate non essential personnel, eliminate ignition sources, and wear protective equipment (See Section III). Shut off source of leak only if safe to do so. Contain spill. Recover Free product. To clean up residue, flush sparingly with water or use an absorbent. Avoid runoff to ground water, surface waters, and sewers. It may be necessary to remove contaminated soil. If product is flammable or combustible, use non sparking tools. If acidity (low pH) is a problem, neutralize with hydrated lime, soda ash, or sodium bicarbonate. If alkalinity (high pH) is a problem neutralize with dilute acetic acid or dilute hydrochloric (muriatic) acid. If required, notify state and local authorities.

DISPOSAL METHOD
Solids must be disposed of in a permitted waste management facility. Recovered liquids may be

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reprocessed or incinerated. Incineration must be handled in a permitted hazardous waste management facility. Dispose of material in accordance with all Federal, State and local regulations. Local regulations may be more stringent than Federal or State.

SECTION VIII

Proper Shipping Name: SODIUM HYDROXIDE SOLUTION
Hazard Class: 8, UN1824 PGII
Label Requirements: CORROSIVE
Reportable Quantity: None

SECTION IX ADDITIONAL INFORMATION

LABEL SIGNAL WORD
DANGER
PRECAUTIONS

Wear protective equipment when handling. Use only with adequate ventilation. Wash thoroughly after handling. Do Not breathe dust. Do Not breathe vapor, mist, or dust. Do Not get in eyes, on skin, or clothing. Do not swallow.

HANDLING
Keep away from water or acid. For industrial use only. When diluting, add product slowly to water with agitation. Heat is generated upon dilution with water. Addition of water can cause violent splashing. ATTENTION: This container hazardous when emptied. Since emptied container contains product residues (vapor or liquid), all labeled hazard precautions must be observed.

STORAGE
Keep container closed when not in use. Store in a cool dry place. Product can cause corrosion of iron and steel at elevated temperatures. Keep out of reach of children.

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