1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Klozur® Caustic

Other means of identification

Synonyms Caustic Soda Solution; Lye Solution; Sodium Hydrate Solution, White Caustic Solution

Recommended use of the chemical and restrictions on use

Recommended Use: Activating agent for Klozur® Persulfate

Restrictions on Use: Use as recommended by the label.

Manufacturer/Supplier

PeroxyChem LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: sdsinfo@peroxychem.com

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 303/ 389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin corrosion/iritation</td>
<td>Category 1 Sub-category A</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Corrosive to Metals</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW
Danger

Hazard Statements
H314 - Causes severe skin burns and eye damage
H302 - Harmful if swallowed
H290 - May be corrosive to metals

Precautionary Statements - Prevention
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P260 - Do not breathe mist, vapours or spray.
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P234 - Keep only in original container

Precautionary Statements - Response
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
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
P363 - Wash contaminated clothing before reuse
P315 - Get immediate medical advice/ attention
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P330 - Rinse mouth
P390 - Absorb spillage to prevent material damage

Precautionary Statements - Storage
P406 - Store in corrosive resistant polyethylene container with a resistant inner liner

Precautionary Statements - Disposal
P501 - Dispose of contents/ container according to local regulation

Hazards not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
None known.

Unknown acute toxicity
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>75</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>25</td>
</tr>
</tbody>
</table>

Synonyms are provided in Section 1.

4. FIRST AID MEASURES
Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. See a medical doctor or ophthalmologist immediately.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash off with soap and water. Seek immediate medical attention/advice.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention.

Ingestion
Rinse mouth with water and afterwards drink plenty of water or milk. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Most important symptoms and effects, both acute and delayed
Liquid and mist are corrosive (causing burns); direct contact could cause irreversible damage to eyes including blindness and/or irreversible destruction of skin tissue. Vapor/mist will irritate nose, throat and lungs but will usually subside when exposure ceases.

Indication of immediate medical attention and special treatment needed, if necessary
Sodium hydroxide at this concentration is corrosive. Prolonged dilution with water is required. Neutralization of eye burns is absolutely contraindicated; for skin, 2% acetic acid has been recommended, but washing with water is effective. Ingestion requires milk or water dilution, consideration of esophagoscopy and management for possible esophageal structure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing agent suitable for type of surrounding fire. Cool containers / tanks with water spray.

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Not flammable

Explosion data
Not sensitive.

Sensitivity to Mechanical Impact
Not sensitive.

Sensitivity to Static Discharge
Not sensitive.

Protective equipment and precautions for firefighters
Use water spray to cool fire exposed surfaces and protect personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. For personal protection see Section 8.

Other
For further clean-up instructions, call PeroxyChem Emergency Hotline number listed in Section 1 “Product and Company Identification” above.

Environmental Precautions
Prevent material from entering into soil, ditches, sewers, waterways, and/or groundwater. See Section 12, Ecological Information for more detailed information.

Methods for Containment
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Methods for cleaning up
After cleaning, flush away traces with water. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling
Avoid contact by using personal protective equipment. Refer to Section 8. Use only in area provided with appropriate exhaust ventilation.

Storage
Keep tightly closed in a dry and cool place. Keep away from incompatible products (acids).
Klozur® Caustic

**Incompatible products**
Acids, flammable liquids, organic halogen compounds, nitro compounds, and amphoteric metals, such as aluminum, magnesium and zinc

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control parameters

**Exposure Guidelines**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide 1310-73-2</td>
<td>Ceiling: 2 mg/m³</td>
<td>TWA: 2 mg/m³</td>
<td>IDLH: 10 mg/m³ Ceiling: 2 mg/m³</td>
<td>Mexico: Ceiling 2 mg/m³</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**

**Engineering measures**

Adequate engineering controls and/or personal protective equipment must be used to prevent contact with skin and eyes. Engineering controls and/or respirators may be necessary when the generation of airborne mists or fog are possible.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection**

For dust, splash, mist or spray exposure, wear chemical protective goggles. Face-shield.

**Skin and Body Protection**

Rubber or vinyl apron. Rubber or plastic boots.

**Hand Protection**

Rubber or vinyl gloved with gauntlets. Wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

**Respiratory Protection**

When exposure above the established standard is likely, a respiratory protection program that complies with OSHA General Industry Standard 1910.134 should be implemented. Wear full face-piece respirators approved by MSHA/NIOSH if mists are expected.

**Hygiene measures**

Prevent contact with skin eyes and clothing. Clean water should be available for washing in case of eye or skin contamination.

**General information**

Clean water should be available for washing in case of eye or skin contamination.

---

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Clear, Colorless</td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>14 (7.4 % solution)</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>-16 to -20 °C</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>112 - 122 °C</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not flammable</td>
</tr>
<tr>
<td><strong>Flammability Limit in Air</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Upper flammability limit</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Lower flammability limit</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>10 - 18 hPa @ 30 °C</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Specific gravity</strong></td>
<td>1.28 - 1.38 @ 15.5 °C</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Heat; Incompatible products; Exposure to water.

Incompatible materials
Acids, flammable liquids, organic halogen compounds, nitro compounds, and amphoteric metals, such as aluminum, magnesium and zinc.

Hazardous Decomposition Products
Sodium oxides.

11. TOXICOLOGICAL INFORMATION

Product Information

Unknown acute toxicity
0% of the mixture consists of ingredient(s) of unknown toxicity

LD₅₀ Oral
400 mg/kg (rabbit) (37 % solution)

LD₅₀ Dermal
corrosive

LC₅₀ Inhalation
Corrosive

Serious eye damage/eye irritation
Corrosive. Corneal lesions and irreversible damage if contact with the eyes.

Skin corrosion/irritation
Corrosive to skin. Causes severe burns.

Information on toxicological effects

Symptoms
Liquid and mist are corrosive and can cause burns, direct contact could cause irreversible damage to eyes including blindness and/or irreversible destruction of skin tissue. Vapor/mist will irritate the nose, throat and lungs, but will usually subside when exposure ceases. The severity of the effects depends in the concentration and dose.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity
Sodium hydroxide may produce inflammation of the eyes, skin, and mucous membranes. Esophageal carcinoma at the site of a chronic lye stricture has been reported. [Gosselin, Smith & Hodge 1984].

Carcinogenicity
Not recognized as carcinogenic by Research Agencies (IARC, NTP, OSHA, ACGIH).

Mutagenicity
This product is not recognized as mutagenic by Research Agencies.
Reproductive toxicity
This product is not recognized as reprotox by Research Agencies.

STOT - single exposure
Not classified.

STOT - repeated exposure
Not classified.

Target organ effects
Skin, Eyes, Mucous membrane.

Aspiration hazard
Aspiration risk: may cause lung damage if swallowed.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects
Large amounts will affect pH and harm aquatic organisms

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to Microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td></td>
<td>96 h LC50: = 45.4 mg/L (Oncorhynchus mykiss) static</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
There is no degradation of sodium hydroxide in waters, only loss by absorption or through chemical neutralization.

Bioaccumulation
Bioaccumulation is unlikely.

Mobility
Will likely be mobile in the environment due to its water solubility.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Dispose of in accordance with local regulations. Check the pH of waste to be disposed. If it is greater than 12.5 it must be handled as a RCRA hazardous waste. Can be disposed as waste water, when in compliance with local regulations.

US EPA Waste Number
D002

Contaminated Packaging
Clean container with water. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>UN/ID no</th>
<th>Proper Shipping Name</th>
<th>Hazard class</th>
<th>Packing Group</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824</td>
<td>Sodium hydroxide solution</td>
<td>8</td>
<td>II</td>
<td>1000 lbs.</td>
</tr>
</tbody>
</table>

TDG

<table>
<thead>
<tr>
<th>UN/ID no</th>
<th>Proper Shipping Name</th>
<th>Hazard class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824</td>
<td>Sodium hydroxide solution</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

ICAO/IATA

| UN/ID no | 
|----------| 1824 |
Klozur® Caustic

Proper Shipping Name: Sodium hydroxide solution
Hazard class: 8
Packing Group: II

IMDG/IMO
UN/ID no: 1824
Proper Shipping Name: Sodium hydroxide solution
Hazard class: 8
Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Acute health hazard: Yes
Chronic health hazard: NO
Fire hazard: NO
Sudden release of pressure hazard: NO
Reactive Hazard: NO

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>1310-73-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
<th>SARA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1000 lb</td>
<td></td>
<td>RQ 1000 lb final RQ</td>
</tr>
<tr>
<td>1310-73-2</td>
<td></td>
<td></td>
<td>RQ 454 kg final RQ</td>
</tr>
</tbody>
</table>

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA (United States)</th>
<th>DSL (Canada)</th>
<th>EINECS/EL INCS (Europe)</th>
<th>ENCS (Japan)</th>
<th>China (IECSC)</th>
<th>KECL (Korea)</th>
<th>PICCS (Philippines)</th>
<th>AICS (Australia)</th>
<th>NZIoC (New Zealand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1310-73-2 (25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mexico - Grade: Serious risk, Grade 3

CANADA

WHMIS Statement
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the
**Klozur® Caustic**

MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**
- D2B - Toxic materials
- E - Corrosive material

---

### 16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Stability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ] 3</td>
<td>[ ] 0</td>
<td>[ ] 1</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical hazard</th>
<th>Special precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ] 3</td>
<td>[ ] 0</td>
<td>[ ] 1</td>
<td>[ ] H</td>
</tr>
</tbody>
</table>

**NFPA/HMIS Ratings Legend**
Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0
Protection = H (Safety goggles, gloves, apron, the use of supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

**Revision date:** 2015-05-22  
**Revision note:** Initial Release

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[End of Safety Data Sheet]