SAFETY DATA SHEET
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
Product name: Caustic Soda (Sodium Hydroxide Solution), 5 - 51%
Synonyms, Trade Names: Caustic Soda Liquor, Sodium Hydroxide Solution, Lye
REACH Registration number: 01-2119457892-27
CAS-No.: 1310-73-2
EC No.: 215-185-5

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Treatment of drinking water, has received approval by the European Committee for Standardisation.

1.3. Details of the supplier of the safety data sheet
Supplier: Industrial Chemicals Limited
Hogg Lane
Grays
Essex
RM17 5DU
United Kingdom
T:+44 (0)1375 389000
F:+44 (0)1375 389110
sds@icgl.co.uk

1.4. Emergency telephone number
+44 (0)1865 407333 (24-hour)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
Classification (EC 1272/2008)
Human health: Skin Corr. 1A - H314; Eye Dam. 1 - H318
Environment: Not classified.

Classification (1999/45/EEC)
C;R35.
The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health
Corrosive. Prolonged contact causes serious eye and tissue damage.

Environment
Substantial amounts of the product may lead to a local change in acidity in small water systems which may have adverse effects on aquatic organisms.

2.2. Label elements
EC No.: 215-185-5
Contains: SODIUM HYDROXIDE
Label In Accordance With (EC) No. 1272/2008
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Signal Word Danger

Hazard Statements
- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.

Supplementary Precautionary Statements
- P234 Keep only in original container.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P260 Do not breathe vapour/spray.
- P264 Wash contaminated skin thoroughly after handling.
- P321 Specific treatment (see medical advice on this label).
- P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+351+338 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.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.
- P405 Store locked up.
- P406 Store in corrosive resistant/… container with a resistant inner liner.
- P501 Dispose of contents/container to ...

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

<table>
<thead>
<tr>
<th>SODIUM HYDROXIDE</th>
<th>40-80%</th>
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<tbody>
<tr>
<td>CAS-No.: 1310-73-2</td>
<td>EC No.: 215-185-5</td>
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<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
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<tbody>
<tr>
<td>Skin Corr. 1A - H314</td>
<td></td>
</tr>
<tr>
<td>Eye Dam. 1 - H318</td>
<td></td>
</tr>
</tbody>
</table>

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

REACH Registration number 01-2119457892-27
CAS-No. 1310-73-2
EC No. 215-185-5

Composition Comments
Mercury (Rayon) grade contains a low level of mercury, typically less than 0.1 ppm. Diaphragm grade contains up to 1.3% sodium chloride, which increases the density of the solution.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information
Get medical attention immediately! CAUTION! First aid personnel must be aware of own risk during rescue!
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Inhalation
Rinse nose, mouth, and throat with running water.

Ingestion
Do not induce vomiting. If confined to the mouth, rinse mouth thoroughly and ensure water is not swallowed. If swallowed, drink plenty of water. If substance has been swallowed, give water or milk to drink immediately. Get medical attention immediately!

Skin contact
Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention immediately!

Eye contact
Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes.

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

General information
Strong corrosive action on all body tissue, causing burns and frequently deep ulceration, and ultimately scarring.

Inhalation
Mist/droplets are irritating to the respiratory tract, and will cause a burning sensation in the throat, coughing, and breathing difficulties. Pulmonary oedema (excessive liquid in the lungs) can occur after inhalation of higher amounts.

Ingestion
Causes severe damage to gastrointestinal tract. Can cause perforation and scarring.

Skin contact
Burning pain and severe corrosive skin damage. Causes burns, deep ulceration, and scarring. Frequent contact with lower concentrations may cause eczema.

Eye contact
Corrosive to eyes. May cause severe corneal damage, reduced vision, or even blindness.

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

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
Contact with some metals can liberate flammable hydrogen gas.

5.3. Advice for firefighters

Protective equipment for fire-fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet. In case of spills, beware of slippery floors and surfaces.

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material. Release to rivers will cause a strong increase in pH, resulting in death to aquatic organisms. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Small Spillages: Neutralise with weak acid and wash away with water. Alternately, drench spill with water and wash away. Large Spillages: Isolate and pump into a tank. Dispose of via a licensed hazardous waste contractor. Keep people and animals away from contaminated areas.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Following prolonged storage in metal tanks, a black sludge will collect at the bottom of the tank. This will contain iron, sodium carbonate, and when Mercury (Rayon) grade is stored, mercury. Test the atmosphere in the tank for oxygen and mercury vapour before entering. Appropriate care must be taken when removing and handling this sludge, including control of atmospheric levels. Handle with care as an alkaline material. Take care when diluting with water (heat generation). Avoid contact with skin and eyes. Avoid generation of sprays or mists.

7.2. Conditions for safe storage, including any incompatibilities

Store in vessels of mild steel. Keep away from acids and other chemicals that react with this product. Build-up of white metal carbonate crystals may occur if tank is open to air.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA - 8 Hrs</th>
<th>STEL - 15 Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM HYDROXIDE</td>
<td>WEL</td>
<td></td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

WEL = Workplace Exposure Limit.

8.2. Exposure controls

Protective equipment

Engineering measures
Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory equipment
If ventilation is insufficient, suitable respiratory protection must be provided.

Hand protection
Wear protective gloves. Rubber or plastic.

Eye protection
Goggles/face shield are recommended.

Other Protection
Chemical suit and boots if handling large quantities.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value and Grade</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colourless liquid.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>142 °C</td>
</tr>
<tr>
<td>(°C)</td>
<td>For 50% Membrane grade</td>
</tr>
<tr>
<td>Melting point (°C)</td>
<td>12</td>
</tr>
<tr>
<td>(°C)</td>
<td>For 50% Membrane grade</td>
</tr>
<tr>
<td>Relative density</td>
<td>1525 20</td>
</tr>
<tr>
<td>(°C)</td>
<td>For 50% Membrane grade</td>
</tr>
<tr>
<td>Viscosity</td>
<td>78 cP 20</td>
</tr>
<tr>
<td>(°C)</td>
<td>For 50% Membrane grade</td>
</tr>
</tbody>
</table>

9.2. Other information
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

10.2. Chemical stability

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Vessels should not be open to air; substance absorbs water and carbon dioxide. In extreme cases, the carbonate can form white floating crystals. Do not store adjacent to incompatible materials, such as acids and amphoteric metals eg aluminium, magnesium, zinc, tin and bronze - may release hydrogen gas.

10.5. Incompatible materials

Materials To Avoid

Reaction with ammonium compounds releases ammonia. May react violently with acrolein, acrylnitrice, and allyl alcohol. Heating with trichloroethylene will form explosive mixtures of dichloroacetylene. Some plastics, leather and textiles are destroyed on contact. Mixture with water or acids will release large quantities of heat.

10.6. Hazardous decomposition products

Thermally stable to boiling point; does not decompose. Precipitation of metal hydroxide crystals can occur below 12C.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

General information

Strong corrosive action on all body tissue, causing burns and frequently deep ulceration, with ultimate scarring.

Inhalation

Mist/droplets are corrosive to the respiratory tract, and will cause a burning sensation in the throat, coughing and breathing difficulties. Pulmonary oedema (excessive liquid in lungs) can occur after inhalation of higher amounts.

Ingestion

If ingested will cause severe damage to gastrointestinal tract. Can cause perforation and scarring.

Skin contact

Corrosive to body tissue, causing burns, deep ulceration, and scarring. Frequent contact with lower concentrations may cause eczema.

Eye contact

Vapour or spray may cause eye damage, impaired sight or blindness.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Spillage will cause localised damage to animals and plants on the ground. Do not allow release into controlled waters; resulting high pH will affect aquatic life forms. If allowed to enter drains will damage effluent treatment organisms. Neutralisation and dilution will greatly reduce these effects. Product is chemically degradable into sodium carbonate.

12.1. Toxicity

LC 50, 96 Hrs, Fish mg/l 45.4

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects
**Caustic Soda (Sodium Hydroxide Solution), 5 - 51%**

### SECTION 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**
Neutralise with dilute acid and wash away with large amounts of water. Confirm disposal procedures with environmental engineer and local regulations.

### SECTION 14: TRANSPORT INFORMATION

**14.1. UN number**

UN No. (ADR/RID/ADN) 1824

**14.2. UN proper shipping name**

Proper Shipping Name SODIUM HYDROXIDE SOLUTION

**14.3. Transport hazard class(es)**

ADR/RID/ADN Class Class 8: Corrosive substances.

**14.4. Packing group**

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

**14.5. Environmental hazards**

**14.6. Special precautions for user**

Hazard No. (ADR) 80

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

### SECTION 15: REGULATORY INFORMATION

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

**15.2. Chemical Safety Assessment**
No chemical safety assessment has been carried out.

### SECTION 16: OTHER INFORMATION

**General information**
The material must only be loaded and unloaded from tankers by trained personnel, such as those with a Hazchem certificate.

Sodium hydroxide solution is used as a chemical for the treatment of drinking water, as approved by the European Committee for Standardisation under EN 896:2005.

This data sheet was prepared in accordance with EC 1907/2006 concerning REACH.

**Revision Comments**
Updated Section(s) 1.

**Issued By** D.Kelly
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Risk Phrases in Full
R35
Causes severe burns.

Hazard Statements in Full
H318
Causes serious eye damage.
H314
Causes severe skin burns and eye damage.
H290
May be corrosive to metals.

Disclaimer
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.