

Comet Chemical Company Ltd.

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Materials Safety Data - **SODIUM HYDROXIDE (50% Solution)** (Caustic Soda Liquid, NaOH Solution)

Shipping Name	UN - 1824
Transport of Dangerous Goods Class	SODIUM HYDROXIDE, SOLUTION
WHMIS Class	Class 8; Packing Group II
Material Use	D 1A; E mfg. of soap, rayon & cellophane, neutralising agent, etc

1. HAZARDOUS INGREDIENTS	CAS NUMBER	%	TWAEV (mg/m ³)	LD ₅₀ ORAL	(mg/kg) SKIN	LC ₅₀ ppm INHALATION
Sodium Hydroxide	1310-73-2	50%	2	above 500	not known	not known

2. PHYSICAL CHARACTERISTICS

Odour & Appearance	colourless, odourless, pearlescent heavy liquid
Odour Threshold	odourless
Vapour Pressure	1.5 mmHg (20°C)
Vapour Density (air = 1)	not applicable, water vapour only
Boiling Point	140°C (<i>NOTE: B.P. will rise as water evaporates from the solution.</i>)
Freezing Point	13°C (<i>NaOH begins to crystallise out of solution at this temperature</i>)
Density	1.52 (20°C)
Water Solubility	complete (also readily miscible with methyl & ethyl alcohols & glycols)
pH (water solution)	14 - highly alkaline

3. FLAMMABILITY & REACTIVITY

Flash Point	not flammable
Autoignition Temperature	not flammable
Flammable Limits	not flammable
Hazardous Combustion Products	sodium oxide, peroxides, carbonates may form in fire
Firefighting Precautions	as for combustibles sustaining fire; firefighters must wear SCBA
Sensitivity to Static Discharge	not sensitive
Sensitivity to Mechanical Impact	not sensitive
Chemical Stability	stable; will not polymerize
Reactive With	aluminum, zinc, tin, copper, (& alloys of these metals) releasing hydrogen; violent reaction with acids; reacts with glycols, organic peroxides, organohalogens, damages leather, wool & some other textiles; liberates heat on dilution with water
Dangerous Decomposition Products	see (Combustion Products) above

4. TOXICOLOGY EFFECTS OF ACUTE EXPOSURE

Skin Contact	causes severe burns, ulceration & scarring, <i>even when diluted to 10%!</i> CAUTION: sodium hydroxide burns can be painless - may not warn of dangerous injury!
Skin Absorption	nil
Eye Contact	severely corrosive - permanent damage likely
Inhalation	does not vapourise readily; mist can cause severe damage to respiratory system
Ingestion	severe burns to mouth and digestive system; may perforate gut (likelihood of ingestion slight)

(Sodium Hydroxide solution, cont'd)

EFFECTS OF CHRONIC EXPOSURE

General	prolonged exposure to concentrate unlikely; dilute alkali may cause skin cracking
Sensitising	no
Carcinogenic	no effects documented in humans
Reproductive Effect	no effects documented in humans
Synergistic With	not known
Estimated LD ₅₀	1000 mg/kg (oral) - not LD ₅₀ , but lowest lethal dose recorded
Estimated LC ₅₀	not known

5. PROTECTIVE EQUIPMENT

Hands	rubber, neoprene or polyvinyl chloride (PVC) gloves (<i>almost any waterproof material protects</i>)
Eyes	safety glasses with side shields or chemical goggles
Respirator	dust, mists and fume filter/cartridge recommended is any danger of inhaling dust
Clothing	rubber, neoprene or PVC apron, boots, long sleeves, mandatory; face shield should also be worn

NOTE: This product is highly corrosive – do not take chances by not wearing protective clothing!

6. ENVIRONMENT

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	sweep up material; neutralise residue with dilute acid or with sodium bicarbonate
Waste Disposal	do not flush to sewer ; sweepings may be taken by hazardous waste handler for neutralisation; neutral sludge may be dumped in landfill if local regulations permit

7. STORAGE & HANDLING

Keep away from acids and certain metals (3 above). **If mist is generated, mechanical ventilation is mandatory.** This material reacts violently with acids. This product liberates large amounts of heat on dilution with water. Dilute slowly, agitating continuously, and monitoring temperature. May react with sugars to produce carbon monoxide - an extremely toxic gas. Avoid all contact with skin and wash work clothes frequently. **An eye bath and safety shower MUST be available near the workplace.** *This product reacts slowly with carbon dioxide in the air, effectively neutralising itself within days or hours.*

8. FIRST AID

SKIN:	Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is any irritation.
INHALATION:	Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION:	Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs keep victim's head below hips to prevent inhalation of vomited material. Seek medical help immediately!

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this product. *Moreover, this product damaged the oesophagus on the way down and will cause further damage in the reverse direction!* The stomach should be emptied under medical supervision, after the installation of an airway to protect the lungs.

NOTE TO PHYSICIAN: Aspiration into lungs may cause severe oedema. Early steroid therapy may prevent or alleviate this.

Emergency telephone numbers	- weekdays from 8:00 - 5:00	(705) 436-5580
	at all other times	(800) 567-7455 (Philip Environmental)

Prepared for Comet Chemical Co. Ltd., by *Nicholas Morgan, September 2002; Revised August 2005*

The information herein is given in good faith but no warranty, expressed or implied is made.

PLEASE ENSURE THAT THIS MSDS IS GIVEN TO AND EXPLAINED TO THE PERSON USING THIS PRODUCT.

<File: caustic-50%>