

## Caustic Soda

### SECTION 1. IDENTIFICATION

<b>Product Identifier</b>	Caustic Soda
<b>Other Means of Identification</b>	Sodium Hydroxide
<b>Product Family</b>	Alkalinity Control
<b>Recommended Use</b>	Drilling Fluid Additive.
<b>Supplier Identifier</b>	Integrity Chemical Solutions Inc. 205 Crystal Shores Drive, Okotoks, Alberta T1S 2L1 403.988.7695
<b>Emergency Phone No.</b>	

**FOR EMERGENCIES INVOLVING DANGEROUS GOODS**

Call CANUTEC'S 24-Hour Number:

1-888-CANUTEC (226-8832) (North American use) and/or 1-613-996-6666 (International use)

### SECTION 2. HAZARD IDENTIFICATION

#### Classification

Corrosive to metals - Category 1; Acute toxicity (Oral) - Category 1; Acute toxicity (Dermal) - Category 2; Acute toxicity (Inhalation) - Category 2; Serious eye damage - Category 1; Specific target organ toxicity (repeated exposure) - Category 1

#### Label Elements



Signal Word:

**DANGER!**

**TOXIC!** Can be fatal if ingested.

Can cause severe skin burns, eye damage and respiratory failure.

Long term exposure can cause permanent damage to the respiratory system.

Precautionary Statement(s):

Prevention:

Keep only in original container.

Do not breathe dust/fume/gas/mist/vapours/spray.

Do not get in eyes, on skin, or on clothing.

Wash hands and skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing.

Wear eye protection/face protection.

In case of inadequate ventilation wear respiratory protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTRE or doctor.

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

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Product Identifier: Caustic Soda  
Date of Preparation: December 20, 2022

Get medical advice or attention if you feel unwell.  
Take off immediately all contaminated clothing and wash it before reuse.  
Absorb spillage to prevent material damage.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.  
Store locked up.

**Disposal:**

Dispose of contents and container in accordance with local, regional, national and international regulations.

**Other Hazards**

Contact with water causes violent frothing and spattering. Reacts with metals such as aluminum, tin and zinc to generate flammable and explosive hydrogen gas.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Sodium hydroxide	1310-73-2	98		

### SECTION 4. FIRST-AID MEASURES

**First-aid Measures**

**Inhalation**

Move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. Immediately call a Poison Centre or doctor. Specific treatment is urgently required.

**Skin Contact**

Avoid direct contact. Wear chemical protective clothing if necessary. Remove contaminated clothing and footwear immediately. Immediately rinse with lukewarm, gently flowing water for 15-20 minutes. Get medical attention immediately. Launder contaminated clothing before re-use.

**Eye Contact**

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay flushing or attempt to remove the lens. Immediately call a Poison Centre or doctor. Specific treatment is required.

**Ingestion**

Rinse mouth with water. Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Give no more than 8 ounces of milk in adults or 4 ounces of milk in children to minimize risk of vomiting. Immediately call a Poison Centre or doctor. Specific treatment is required.

**First-aid Comments**

Keep victim warm. In the case of shortness of breath, give oxygen. Immediate medical attention is required. Ensure that medical personnel are aware of the material(s) involved, and take the appropriate precautions to protect themselves.

**Most Important Symptoms and Effects, Acute and Delayed**

If on skin:

May burn the skin. Permanent scarring may result.

If in eyes:

Causes moderate to severe irritation. Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

If swallowed:

Permanent damage can result. Can burn the lips, tongue, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

### SECTION 5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media**

Product Identifier: Caustic Soda  
Date of Preparation: December 20, 2022

Do not use water. Use extinguishing agent suitable for type of surrounding fire.

### **Specific Hazards Arising from the Product**

Does not burn.

Contact with water causes violent frothing and spattering. With concentrations of 40% or greater, the heat generated can result in dangerous eruptions of the solution.

Caustic soda will react with metals such as aluminum, tin, and zinc to generate flammable and explosive hydrogen gas.

### **Special Protective Equipment and Precautions for Fire-fighters**

Move containers from the fire area, if it can be done without risk. Wear full protective clothing, including helmet with face mask, self-contained positive pressure or demand breathing apparatus and gloves.

Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions, Protective Equipment, and Emergency Procedures**

Use the personal protective equipment recommended in Section 8 of this safety data sheet. Ventilate closed spaces before entering. Keep unnecessary personnel away.

### **Environmental Precautions**

Do not allow into any sewer, on the ground or into any waterway.

### **Methods and Materials for Containment and Cleaning Up**

Small spill: Use appropriate tools to sweep up and put spilled solid in a convenient waste disposal container. Avoid generating dust.

Large spill: Corrosive solid. Stop leak if without risk. Do not touch spilled material and avoid getting water onto solid product. Prevent entry into any waterway, basements, sewers or confined areas. Dike if needed.

## **SECTION 7. HANDLING AND STORAGE**

### **Precautions for Safe Handling**

Prevent accidental contact with incompatible chemicals. Wear personal protective equipment to avoid direct contact with this chemical. Avoid breathing any dust from this material. Avoid any contact with eyes, skin and clothing. Wash hands after handling and before eating. Considerable heat is generated when water or acid is added, therefore when making solutions ALWAYS add the caustic soda to the water, or acid, with continuous stirring.

It is good practice to: avoid breathing product; avoid skin and eye contact and wash hands after handling.

### **Conditions for Safe Storage**

Store in an area that is: well-ventilated, separate from incompatible materials (see Section 10: Stability and Reactivity). Store in the original, labelled, shipping container.

## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

OSHA = US Occupational Safety and Health Administration.

PEL = Permissible Exposure Limits. 8 hour TWA = Time-Weighted Average. 2 mg/m<sup>3</sup>

ACGIH® = American Conference of Governmental Industrial Hygienists. TLV® = Threshold Limit Value. 2 mg/m<sup>3</sup>.

### **Appropriate Engineering Controls**

Provide eyewash and safety shower if contact or splash hazard exists. Use local exhaust ventilation and enclosure, if necessary, to control amount in the air.

### **Individual Protection Measures**

#### **Eye/Face Protection**

Do not get in eyes. Wear chemical safety goggles.

#### **Skin Protection**

Prevent all skin contact. Avoid repeated or prolonged skin contact. Wear chemical protective clothing e.g. gloves, aprons, boots.

#### **Respiratory Protection**

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Product Identifier: Caustic Soda  
Date of Preparation: December 20, 2022

Wear a NIOSH approved powered air-purifying respirator with an appropriate cartridge.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Basic Physical and Chemical Properties

<b>Appearance</b>	White Beads. Particle Size: Not applicable
<b>Odour</b>	Odourless
<b>Odour Threshold</b>	Not applicable
<b>pH</b>	13.0 (1% solution)
<b>Melting Point/Freezing Point</b>	318 - 323 °C (melting); Not available (freezing)
<b>Initial Boiling Point/Range</b>	2534 °F (1390 °C)
<b>Flash Point</b>	Not applicable
<b>Evaporation Rate</b>	Not applicable
<b>Upper/Lower Flammability or Explosive Limit</b>	Not applicable (upper); Not applicable (lower)
<b>Vapour Pressure</b>	Not applicable
<b>Vapour Density (air = 1)</b>	Not applicable
<b>Relative Density (water = 1)</b>	2.13
<b>Solubility</b>	Soluble in water; Not applicable (in other liquids)
<b>Partition Coefficient, n-Octanol/Water (Log Kow)</b>	Not applicable
<b>Auto-ignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	Not applicable
<b>Viscosity</b>	Not applicable (kinematic)
<b>Other Information</b>	
<b>Physical State</b>	Solid
<b>Molecular Formula</b>	NaOH
<b>Molecular Weight</b>	40 g/mol
<b>Bulk Density</b>	Not applicable
<b>Surface Tension</b>	Not applicable
<b>Critical Temperature</b>	Not applicable
<b>Electrical Conductivity</b>	Not applicable
<b>Vapour Pressure at 50 deg C</b>	Not applicable
<b>Saturated Vapour Concentration</b>	Not applicable

## SECTION 10. STABILITY AND REACTIVITY

### Chemical Stability

Normally stable.

### Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

### Conditions to Avoid

Water, moisture or humidity. Acids.

### Incompatible Materials

Heat is generated when mixed with water. Spattering and boiling can occur. Flammable hydrogen may be generated from contact with metals such as: aluminum, brass, tin, zinc, and alloys of these metals. Avoid contact with acids, halogenated organics, organic nitro compounds, and glycols. Caustic soda solution reacts readily with various reducing sugars (i.e., fructose, lactose, maltose, dry whey solids) to produce carbon monoxide. Precautions should be taken including atmospheric monitoring of the tank to ensure personnel.

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Date of Preparation: December 20, 2022

Corrosive to: aluminum alloys, brass, bronze, copper, lead, tin, zinc.

#### **Hazardous Decomposition Products**

None known.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Likely Routes of Exposure**

Skin contact; inhalation; eye contact; ingestion.

### **Acute Toxicity**

LD50 500 mg/kg (rabbit)

Dermal LD50 Rabbit: 1350 mg/kg

### **Skin Corrosion/Irritation**

Animal tests show moderate or severe irritation following prolonged exposure (24 hours). 500 mg/ 24 H (rabbit). May burn the skin. Permanent scarring may result.

### **Serious Eye Damage/Irritation**

Causes severe eye irritation and burns. May cause chemical conjunctivitis and corneal damage.

CORROSIVE. Causes moderate to severe irritation. Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

### **STOT (Specific Target Organ Toxicity) - Single Exposure**

#### **Inhalation**

Can cause severe respiratory irritation. Inhalation of vapours or mists may produce upper airway edema, wheezing, pulmonary edema, pneumonitis and respiratory failure.

#### **Skin Absorption**

Harmful based on human experience and animal tests.

Very hazardous in the case of skin contact (corrosive, irritant, permeator) may cause severe skin irritation and burns. May cause deep penetrating ulcers of the skin.

#### **Ingestion**

TOXIC. Can cause death. Permanent damage can result. Can burn the lips, tongue, throat and stomach.

Symptoms may include nausea, vomiting, stomach cramps and diarrhea. If patient survives, permanent damage to the gastrointestinal tract may occur and the person may have permanent difficulty in swallowing.

### **STOT (Specific Target Organ Toxicity) - Repeated Exposure**

Prolonged skin contact may defat the skin and produce dermatitis.

Can cause permanent damage to the respiratory system. In severe cases, permanently decreased lung function may occur.

### **Carcinogenicity**

IARC: Group 3 – Not classifiable as to its carcinogenicity to humans. NTP: Not specifically listed. OSHA: Not specifically listed.

No information was located for: Respiratory and/or Skin Sensitization, Development of Offspring, Sexual Function and Fertility, Germ Cell Mutagenicity, Interactive Effects

## **SECTION 12. ECOLOGICAL INFORMATION**

In the case of a solid, anhydrous sodium spill on soil, ground water pollution will occur if precipitation occurs prior to cleanup. Precipitation will dissolve some of the solid (with much heat given off) and create an aqueous solution of sodium hydroxide which then would be able to infiltrate the soil. However, prediction of the concentration and properties of the solution produced would be difficult.

### **Ecotoxicity**

Material is slightly toxic to aquatic organisms on an acute basis (LC50 between 10 and 100 mg/l in most sensitive species). May cause pH shifts outside the range of 5 - 10 standard units; this change may be toxic to aquatic organisms.

### **Persistence and Degradability**

This material is inorganic and not subject to biodegradation.

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## Bioaccumulative Potential

This product and its degradation products are not known to bioaccumulate.

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

## SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	1823	Sodium Hydroxide Solid	8	II

**Special Precautions** Not applicable

**Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable

## SECTION 15. REGULATORY INFORMATION

### Safety, Health and Environmental Regulations

#### Canada

#### WHMIS 1988 Classification



Class E

E - Corrosive

**Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)**

All ingredients are listed on the DSL/NDSL.

## SECTION 16. OTHER INFORMATION

**NFPA Rating** Health - 3 Flammability - 0 Instability - 2  
**Special Hazard - Water-reactive** Based on Sodium hydroxide

**SDS Prepared By** Integrity Chemical Solutions Inc.

**Phone No.** (403) 988-7695

**Date of Preparation** December 20, 2022

### Disclaimer

This Health and Safety information is correct to the best of our knowledge and belief at the date of its publication, but we cannot accept liability for any loss, injury or damage which may result from its use. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as guidance for safe handling, storage, and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment. Should further information be required, this can be obtained through the sales office whose address is at the top of this data sheet.

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Date of Preparation: December 20, 2022