



# Safety Data Sheet

Issue date 14-Oct-2010

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Version 4

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product Identifier

**Product name** Caustic Soda Flakes  
**UN/ID no** UN1823  
**Synonyms** Sodium hydroxide

### Recommended use of the chemical and restrictions on use

**Recommended Use** No information available  
**Uses advised against** For use in industrial installations only

### Details of the supplier of the safety data sheet

**Manufacturer Address** The National Titanium Dioxide Company Ltd. (Cristal)  
P.O. Box 13586  
Jeddah 21414, Kingdom of Saudi Arabia  
Telephone: +966 12 224 8000  
Fax: +966 12 606 9087

**For further information, please contact**

**E-mail address** Regulatory.query@cristal.com

### 24 Hour Emergency Phone Number

**Emergency telephone** SGS (EMAE): +32 3 575 55 55  
SGS (Saudi Arabia): 133 622 193 or +966 133 622 193

## 2. HAZARDS IDENTIFICATION

### Classification

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

Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Acute aquatic toxicity	Category 3
Physical Hazards	Corrosive to Metals Category 1

### Label Elements

#### EMERGENCY OVERVIEW

#### DANGER

**Hazard statements** Causes severe skin burns and eye damage  
Harmful to aquatic life  
**Physical Hazards** May be corrosive to metals



**Appearance** white flakes **Physical State** solid **Odor** Odorless

#### Precautionary Statements - Prevention

Keep only in original container  
 Do not breathe dusts or mists  
 Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Avoid release to the environment

#### Precautionary Statements - Response

Absorb spillage to prevent material damage  
 IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Wash contaminated clothing before reuse  
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Immediately call a POISON CENTER or doctor/physician  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

#### Precautionary Statements - Storage

Store in corrosive resistant container with a resistant inner liner  
 Store locked up

#### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Not applicable

#### Other Information

Other Hazards Hygroscopic

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms** Sodium hydroxide.

Chemical name	CAS No	weight-%
Sodium hydroxide	1310-73-2	100

### 4. FIRST AID MEASURES

#### FIRST AID MEASURES

**General advice** In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Do not delay care and transport of a seriously injured person.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required. Call a physician immediately.

<b>Skin contact</b>	For minor skin contact, avoid spreading material on unaffected skin. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Remove and isolate contaminated clothing and shoes. Wash contaminated clothing before reuse. Immediate medical attention is required. Call a physician.
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately. Keep body warm with blankets. Call a physician or poison control center immediately.
<b>Ingestion</b>	Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or poison control center immediately.

#### **Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	The product causes burns of eyes, skin and mucous membranes. MAY BE FATAL IF SWALLOWED.
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#### **Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Treat symptomatically. In cases of severe esophageal corrosion, consider the therapeutic use of steroids. Supportive measures including monitoring of electrolytes, acid-base balance, gas exchange and fluid intake should be considered.
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### **5. FIRE-FIGHTING MEASURES**

<b><u>Suitable Extinguishing Media</u></b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. ABC-powder. Dry chemical.
<b><u>Unsuitable Extinguishing Media</u></b>	Do not use halon type extinguisher. DO NOT USE WATER, FOAM OR CO2. Water reactive.
<b><u>Specific hazards arising from the chemical</u></b>	Containers may explode when heated or if contaminated with water.
<b><u>Hazardous combustion products</u></b>	Non-combustible. In contact with water releases flammable gases. May ignite combustibles (wood paper, oil, clothing, etc.).
<b><u>Explosion data</u></b>	
<b>Sensitivity to Mechanical Impact</b>	None.
<b>Sensitivity to Static Discharge</b>	None.
<b><u>Protective equipment and precautions for firefighters</u></b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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

#### **Personal precautions, protective equipment and emergency procedures**

<b>Personal precautions</b>	Use personal protective equipment as required. Avoid contact with skin, eyes and inhalation of vapors. Evacuate personnel to safe areas.
<b><u>Environmental Precautions</u></b>	
<b>Environmental Precautions</b>	Prevent product from entering drains. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment. See Section 12 for additional Ecological Information.

#### **Methods and material for containment and cleaning up**

**Methods for Containment** Prevent further leakage or spillage if safe to do so. Dike far ahead of spill; use dry sand to contain the flow of material.

**Methods for cleaning up** Spilled caustic soda rapidly absorbs moisture from the atmosphere to form a slippery solution. Collect spillage. Soak up with inert absorbent material. Never soak up spilled or leaked acids and bases with sawdust, wood chips or similar materials. Sweep up and shovel into suitable containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. When blending, always add caustic to water; never the reverse.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep tightly closed in a dry and cool place. To guarantee the quality and properties of the product keep protected from humidity and bad weather conditions.

**Packaging materials** Corrosive to metal.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> (vacated) Ceiling: 2 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> Ceiling: 2 mg/m <sup>3</sup>

### Appropriate engineering controls

**Engineering controls** Ensure adequate ventilation, especially in confined areas

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

**Eye/face Protection** Wear safety glasses with side shields (or goggles). Face protection shield. Contact lenses should not be worn.

**Skin and Body Protection** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.

**Respiratory protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly after handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	solid	<b>Appearance</b>	white flakes
<b>Odor</b>	Odorless	<b>Odor threshold</b>	No information available

<b><u>Property</u></b>	<b><u>Values</u></b>	<b><u>Remarks • Method</u></b>
pH	13-14	solution (0.5 %)

<b>Melting point/freezing point</b>	318 °C / 604 °F	Melting point / melting range
<b>Boiling point / boiling range</b>	1390 °C / 2534 °F	-
<b>Flash Point</b>		Not applicable
<b>Evaporation Rate</b>		Not applicable
<b>Flammability (solid, gas)</b>		Not applicable
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit:</b>	Not applicable	
<b>Lower flammability limit:</b>	Not applicable	
<b>Vapor pressure</b>		Negligible
<b>Vapor Density</b>	>1.0	@ Air = 1
<b>Specific gravity</b>	2.13	-
<b>Water solubility</b>		No information available
<b>Solubility(ies)</b>		No information available
<b>Partition coefficient</b>		No data available
<b>Autoignition Temperature</b>		Not applicable
<b>Decomposition temperature</b>		Not applicable
<b>Kinematic viscosity</b>		No data available
<b>Dynamic viscosity</b>		No data available
<b>Flammable properties</b>	Not flammable	
<b>Explosive properties</b>	Not an explosive.	
<b>Oxidizing properties</b>	None known	
<b><u>Other Information</u></b>		
<b>VOC content (%)</b>	None	

## 10. STABILITY AND REACTIVITY

<b><u>Stability</u></b>	Stable under recommended storage conditions.
<b><u>Possibility of hazardous reactions</u></b>	Hygroscopic, Incompatible Materials, Reacts with many compounds
<b><u>Hazardous polymerization</u></b>	None under normal processing
<b><u>Conditions to Avoid</u></b>	Reacts with water.
<b><u>Incompatible Materials</u></b>	Aluminum Brass Tin Zinc organic materials Chlorinated hydrocarbons Strong reducing agents Combustible material
<b><u>Hazardous decomposition products</u></b>	None known based on information supplied

## 11. TOXICOLOGICAL INFORMATION

### **Information on likely routes of exposure**

<b>Inhalation</b>	Irritating to respiratory system.
<b>Eye Contact</b>	Risk of serious damage to eyes. Corrosive to the eyes and may cause severe damage including blindness.
<b>Skin contact</b>	Causes severe burns.
<b>Ingestion</b>	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Severe irritation of the mucous membranes causes vomiting, nausea and burns.

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Sodium hydroxide 1310-73-2	-	= 1350 mg/kg ( Rabbit )	-

**Information on toxicological effects**

**Symptoms** No information available.

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

**Skin corrosion/irritation** Causes severe burns.

**Serious eye damage/eye irritation** Risk of serious damage to eyes.

**Sensitization** No information available.

**Germ Cell Mutagenicity** None known.

**Carcinogenicity** There are no known carcinogenic chemicals in this product.

**Reproductive Toxicity** No known effect based on information supplied.

**Developmental Toxicity** None known.

**STOT - single exposure** Target Organs, Respiratory System, Skin, Eyes, Lungs, Mucous membrane

**STOT - repeated exposure** Not classified.

**Aspiration Hazard** Not applicable.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Harmful to aquatic life

Chemical name	Algae/aquatic plants	Fish	Crustacea
Sodium hydroxide 1310-73-2	-	45.4: 96 h Oncorhynchus mykiss mg/L LC50 static	-

**Persistence and degradability** not persistent.

**Bioaccumulation** Material does not bioaccumulate.

**Mobility** Reacts with water.

**Other adverse effects** No information available.

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal of wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Do not empty into drains; dispose of this material and its container in a safe way.

**Contaminated packaging** Improper disposal or reuse of this container may be dangerous and illegal.

**California Hazardous Waste Status** This product contains one or more substances that are listed with the State of California as a hazardous waste.

<b>California Hazardous Waste Status</b>	Toxic; Corrosive
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**14. TRANSPORT INFORMATION**

**DOT**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8  
**Packing group** II  
**Reportable Quantity (RQ)** 1000 lbs / 454 kg  
**Quantity Limitations** Authorized weight in passenger aircraft is limited to 15 kg per parcel; therefore, not possible for 25 kg bags. Cargo aircraft authorizes 50 kg per parcel.  
**Description** UN 5H3/Y25/S97/K.S.A./APCI  
**Labels** Placard Required: Corrosive

**ICAO (air)**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8  
**Packing group** II  
**Special Provisions** Cargo Aircraft only  
**Description** UN 5H3/Y25/S97/K.S.A./APCI

**IATA**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8  
**Packing group** II  
**Special Provisions** 863 Cargo Aircraft only  
**Labels** Corrosive, Cargo Aircraft only  
**Note:** Authorized weight in passenger aircraft is limited to 15 kg per parcel; therefore, not possible for 25 kg bags. Cargo aircraft authorizes 50 kg per parcel. Each parcel must have a weight of 50 kg maximum, which means two 25 kg bags and must be packed in a UN homologated packaging. Number of 50 kg parcels is not limited.  
**Description** UN 5H3/Y25/S97/K.S.A./APCI

**IMDG**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8  
**Packing group** II  
**EmS-No** F-A, S-B  
**Description** UN 5H3/Y25/S97/K.S.A./APCI

**RID**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8  
**Packing group** II  
**Classification code** C6  
**RID Hazard Id** 80  
**Description** UN 5H3/Y25/S97/K.S.A./APCI

**ADR**

**UN/ID no** UN1823  
**Proper Shipping Name** Sodium Hydroxide, solid  
**Hazard Class** 8

**Packing group** II  
**Classification code** C6  
**Tunnel restriction code** (E)  
**ADR Hazard Id (Kemler Number)** 80  
**Description** UN 5H3/Y25/S97/K.S.A./APCI

### 15. REGULATORY INFORMATION

#### International Inventories

**TSCA** Complies  
**DSL** Complies  
**EINECS/ELINCS** Complies  
**ENCS** Complies  
**IECSC** Complies  
**KECL** Complies  
**PICCS** Complies  
**AICS** Complies  
**NIZIC** Complies

#### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances  
**NZIC** - New Zealand Inventory of Chemicals

#### US 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** yes

##### CWA (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)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb	-	-	X

##### 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)

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium hydroxide 1310-73-2	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

### 16. OTHER INFORMATION



**Prepared by** Product Stewardship Department

**Issue date** 14-Oct-2010

**Revision date** 05-Apr-2016

**Revision note** New format  
GHS - Classification

**Other Information** This product is intended for industrial use. This product is not intended for consumption, cosmetic, pharmaceutical or medical end use. Cristal will not knowingly sell product for use into these applications

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

**End of Safety Data Sheet**