Chemical Safety Data Sheet

SECTION 1 IDENTIFICATION

Product Name: Caustic Soda Flakes

Synonyms: Sodium Hydroxide; Lye; Caustic Soda; NaOH

Recommended Use: Industrial and food grade alkaline chemical raw material. For use in chemical synthesis, water treatment, textile, paper, metallurgy, petroleum, food processing, and pharmaceutical industries.

Restrictions on Use: /

Supplier: Shandong Guowei Chemical Industry Co., Ltd.

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SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Skin Corrosion/Irritation, Category 1A

Serious Eye Damage/Eye Irritation, Category 1

Hazardous to the Aquatic Environment – Acute Hazard, Category 3

GHS Label Elements, Including Precautionary Statements:

Signal Word: DANGER

Hazard Statement(s): Causes severe skin burns and eye damage; Causes serious eye damage; Harmful to aquatic life.

Precautionary Statement(s):

Prevention: Operators must be specially trained and strictly follow operating procedures. Wear rubber acid-alkali resistant clothing, rubber gloves, and safety goggles at all times. Keep containers tightly sealed. Store separately from flammable/combustible materials and acids. Do not discharge directly into the environment. Provide spill emergency equipment.

Response: IF ON SKIN: Immediately remove contaminated clothing. Flush with large amounts of running water for at least 20–30 minutes; seek medical attention. IF IN EYES: Immediately lift eyelids; rinse thoroughly with running water or saline for 10–15 minutes; seek medical attention. IF INHALED: Move to fresh air; keep airway clear; administer oxygen if breathing is difficult; perform CPR if necessary. IF SWALLOWED: Rinse mouth with water; give milk or egg whites; do not induce vomiting; seek medical attention immediately.

Storage: Store in a cool, dry, well-ventilated area. Keep containers tightly sealed. Store away from flammable/combustible materials, acids, and food products. Storage temperature ≤ 35 °C; relative humidity ≤ 80%.

Disposal: Neutralise and dilute before disposing into the wastewater treatment system. Do not discharge directly into drains. Dispose of contaminated containers according to national and local regulations.

Physical and Chemical Hazards: Reacts exothermically with acids. Corrosive to aluminium, zinc, and tin in the presence of moisture, releasing flammable hydrogen gas. Does not burn, but generates large amounts

of heat upon contact with water or steam, forming a corrosive solution. Strongly corrosive.

Health Hazards: Strongly irritating and corrosive. Dust irritates eyes and the respiratory tract and may corrode the nasal septum. Direct contact with skin or eyes can cause severe burns. Ingestion may cause burns to the digestive tract, mucosal erosion, haemorrhage, and shock.

Environmental Hazards: Alkaline; may cause water and soil pollution. Special attention should be given to plants and aquatic organisms.

Other Hazards Not Resulting in Classification: /

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Sodium Hydroxide (Caustic Soda Flakes)
CAS No.	1310-73-2
UN No.	1823
EC No.	215-185-5

Grade	**Purity (NaOH)**
Industrial regular grades	98.5% (marked as standard 98%)
Ion-exchange membrane solid industrial grade	≥99.0%
Food Grade	≥ 99.0%

SECTION 4 FIRST AID MEASURES

Description of Necessary First Aid Measures

If inhaled: Move to fresh air immediately. Keep airway clear. Administer oxygen if breathing is difficult. If breathing or heartbeat stops, perform CPR immediately and seek emergency medical care.

In case of skin contact: Immediately remove contaminated clothing. Flush skin with large amounts of running water for at least 20–30 minutes. Seek medical attention if discomfort persists.

In case of eye contact: Immediately lift eyelids and flush thoroughly with running water or saline for 10–15 minutes. Seek medical attention immediately.

If swallowed: Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention immediately. Follow instructions of poison control centre or emergency responders.

Rescuer Protection: Responders entering the accident scene must wear chemical protective clothing, safety goggles, and rubber gloves.

Most Important Symptoms and Effects (Acute and Delayed): Severe burns to skin, eyes, and mucous membranes on contact. Inhalation of dust or mist causes respiratory tract irritation and corrosion. Ingestion causes burns to the digestive tract, mucosal erosion, haemorrhage, and shock.

Indication of Immediate Medical Attention Needed: Patients with severe burns should receive immediate specialist medical treatment. Airway management may be required following significant inhalation exposure.

SECTION 5 FIREFIGHTING MEASURES

Suitable Extinguishing Media: Product is non-flammable. Select extinguishing media appropriate to the surrounding fire. Water mist, dry powder, foam, or carbon dioxide are all acceptable. Avoid direct water jet as it may cause spattering of corrosive liquid.

Special Hazards Arising from the Chemical: Reacts exothermically with acids. Generates flammable hydrogen gas upon contact with aluminium, zinc, or tin in moist conditions. Generates large quantities of heat upon contact with water or steam, forming a corrosive solution.

Special Protective Actions for Fire-Fighters: Wear full acid-alkali resistant fire-fighting suit and self-contained breathing apparatus (SCBA). Move containers from fire area if safely possible. Spray water to cool exposed containers until fire is fully extinguished. Collect and treat fire-water runoff to prevent environmental contamination.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Evacuate and isolate the contaminated area. Restrict access. Emergency responders must wear chemical protective clothing, face shield/goggles, and rubber gloves. Avoid breathing dust or vapour and all contact with skin and eyes.

Environmental Precautions: Prevent spilled material from entering drains, surface water, or groundwater. Collect spillage and avoid environmental contamination.

Methods and Materials for Containment and Cleaning Up:

Minor Spills: Collect as much liquid as possible into a sealable container. Absorb residue with sand, dry earth, or inert material. Transfer to a safe location. Do not flush to drains.

Major Spills: Construct a containment berm or dig a pit to contain the spill. Seal all drain openings. Use spark-free, explosion-proof equipment. Pump into tanker trucks or collection vessels for recovery or transport to an approved waste disposal facility. Wash the area after containment.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Operate in a closed system. Operators must receive specialist training and strictly follow operating procedures. Wear filter-type dust respirator (use SCBA if necessary), rubber acid-alkali resistant clothing, and rubber gloves. Avoid generating dust. Avoid contact with acids. Handle with care during transport to prevent damage to packaging. When diluting or preparing solutions, always add alkali to water — never add water to alkali — to avoid boiling and spattering.

Conditions for Safe Storage, Including Any Incompatibilities: Store in a cool, dry, well-ventilated warehouse. Keep away from ignition sources and heat. Storage temperature ≤ 35 °C; relative humidity ≤ 80%. Containers must be tightly sealed to prevent moisture absorption. Store separately from flammable/combustible materials, acids, and food products. Do not co-store with incompatible materials. Keep suitable spill containment materials in the storage area.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

MAC (mg/m³)	2	GBZ 2.1 (China)
TLV-C (mg/m³)	2	ACGIH
PC-TWA (mg/m³)	/	
PC-STEL (mg/m³)	/	
Monitoring Method	Acid-base titration method, per GBZ/T 160 (China workplace air standard)	

Appropriate Engineering Controls: Closed operation. Provide safety shower and eyewash station. Local exhaust ventilation required where dust exposure may occur.

Personal Protective Equipment

Eye/face protection: Chemical safety splash goggles.

Skin protection: Rubber acid-alkali resistant gloves (butyl or natural rubber, thickness ≥ 0.5 mm). Rubber acid-alkali resistant clothing with chemical splash resistance. Safety footwear (rubber).

Respiratory protection: When dust exposure is possible, wear a filter-type dust respirator. Use an air-supplied or self-contained breathing apparatus (SCBA) if necessary.

Other protection: No smoking, eating, or drinking in the workplace. Wash hands before meals. Shower and change clothing after work.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White flaky solid
Odour	/
Odour Threshold	/
pH (1% solution)	12.7
Melting point	318.4 °C
Boiling point	1390 °C
Flash point	/
Evaporation rate	/
Flammability (solid/gas)	Non-flammable
Upper/lower flammability limits	/
Vapour pressure	0.13 kPa (739 °C)
Vapour density	/
Relative density (water = 1)	2.13
Water solubility	Easily soluble; releases considerable heat on dissolution. Highly hygroscopic.
Partition coefficient (n-octanol/water)	/
Autoignition temperature	/
Decomposition temperature	/
Viscosity	/
Molecular formula	NaOH
Molecular weight	40.00 g/mol

SECTION 10 STABILITY AND REACTIVITY

Reactivity: Reacts exothermically with acids; corrosive to aluminium, zinc, and tin in the presence of moisture, releasing flammable hydrogen gas.

Chemical Stability: Stable under normal storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerisation will not occur.

Conditions to Avoid: Moisture, humid air, contact with water or steam, direct sunlight, heat, and open flame.

Incompatible Materials: Strong acids, flammable or combustible materials, carbon dioxide, peroxides, water.

Hazardous Decomposition Products: None under normal storage conditions.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Health Effects

Inhalation: Dust and mist are corrosive to the upper respiratory tract and lungs. Significant inhalation may be fatal.

Ingestion: Toxic effects may result from ingestion. Causes burns to the digestive tract, mucosal erosion, haemorrhage, and shock.

Skin: Produces severe burns and inflammation of the skin following direct contact.

Eyes: Causes severe eye damage and burns. May result in permanent vision impairment.

Chronic Health Effects: No evidence of carcinogenicity or mutagenicity based on available data.

Numerical Measures of Toxicity (Acute Toxicity Estimates): /

Parameter	Value	Species/Route
Oral LD50	2000 mg/kg (literature reference, RTECS)	Rat, oral
Dermal LD50	Not determined (strong corrosive; testing not applicable)	—

SECTION 12 ECOLOGICAL INFORMATION

Toxicity: Alkaline; harmful to aquatic organisms due to pH elevation. Special attention should be given to plants and aquatic life.

Persistence and Degradability: /

Bioaccumulative Potential: /

Mobility in Soil: /

Other Adverse Effects: Spills may cause water and soil contamination.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal Methods: Recover and recycle where possible. If not recyclable, neutralise and dilute before disposing into the wastewater treatment system. Do not discharge directly into drains or the environment. Consult national and local regulations before disposal.

Contaminated Packaging: Return containers to the manufacturer or dispose of in accordance with national and local regulations. Empty containers may contain residual hazardous material.

SECTION 14 TRANSPORT INFORMATION

UN Number: 1823

UN Proper Shipping Name: Sodium Hydroxide, Solid

Transport Hazard Class(es): Class 8 — Corrosive Substances (Alkaline)

Packaging Group: II

Environmental Hazards: /

Special Precautions for User: Ensure containers do not leak, collapse, fall, or sustain damage during transit.

Vehicles must carry spill emergency response equipment. Must not be co-loaded with acidic goods, flammable materials, or food products. Fully compliant with IMDG requirements for sea freight.

Packaging Methods (Solid): 25 kg moisture-proof laminated woven bags (standard); ton bags for bulk orders; 0.5 mm thick steel drums sealed (max 200 kg net). All packages to be marked with standard corrosive hazard labels.

Main Loading Ports: Qingdao Port; Tianjin Port (and other major Chinese ports)

SECTION 15 REGULATORY INFORMATION

Regulations:

Sodium Hydroxide (CAS: 1310-73-2) is listed in the following regulatory documents: "China Catalogue of Hazardous Chemicals"; "China Dangerous Goods Name List" (GB 12268-2012) — classified as Class 8.2 Alkaline Corrosive Substance.

This safety data sheet is in compliance with the following national standards: GB/T 16483-2008, GB 30000.2-2013 ~ GB 30000.29-2013.

Applicable regulations include: Dangerous Chemicals Safety Administration Regulations (China); Dangerous Goods Transport Administration Regulations (China); United Nations Regulations on the Transport of Dangerous Goods (UN RTDG); International Maritime Dangerous Goods Code (IMDG).

Food grade products comply with relevant food safety certification requirements. GOST certification available for Central Asian markets.

SECTION 16 OTHER INFORMATION

References:

"Model Regulations on the Transport of Dangerous Goods" (UN RTDG)

"The Globally Harmonized System of Classification and Labelling of Chemicals" (GHS)

GB/T 16483-2008; GB 30000 series standards

Form Date: May 6, 2026

Abbreviations:

MAC	Maximum Allowable Concentration – not to be exceeded at any time during a work shift
PC-TWA	Permissible Concentration – Time-Weighted Average (8 h/day, 40 h/week)
PC-STEL	Permissible Concentration – Short-Term Exposure Limit (15 min)
TLV-C	Threshold Limit Value – Ceiling (instantaneous limit)
IMDG	International Maritime Dangerous Goods Code
COA	Certificate of Analysis
SDS	Safety Data Sheet

Note 1: Manufacturer/supplier shall ensure the correctness of the information contained in this safety data sheet and update it in a timely manner.

Note 2: Where certain information is not available or not applicable (e.g., boiling point does not exist for solids), the entry is marked "/".

Disclaimer: The information provided in this SDS is accurate to the best of our knowledge at the time of

issue and is intended only for persons who have received appropriate professional training. Users must independently assess the applicability of this SDS under their specific conditions of use. The issuing company shall not be liable for any harm resulting from the use of this document in conditions not covered herein.