

PRODUCT
Caustic Soda Flakes 99%

CAS
1310-73-2

UN NUMBER
UN 1823, Class 8, PG II



DANGER: Corrosive

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Caustic Soda Flakes 99%
Part number	RXSOL-20-2022-050
Synonyms	Sodium hydroxide, solid; NaOH flakes
Recommended use	Industrial chemical: soap and detergents, water treatment and pH control, cleaning, textiles, metal finishing, chemical manufacturing.
Supplier	DUBI CHEM, Plot no. 37A, Block L, Al Hayl Industrial Area, Fujairah, United Arab Emirates
Telephone	+971 56 107 1115 / +971 56 108 1115
Email	support@dubichem.com

2. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical name	Sodium hydroxide
CAS number	1310-73-2
EC number	215-185-5
% by weight	100
Toxicological data on ingredients	Sodium hydroxide LD50: Not available. LC50: Not available.

3. HAZARDS IDENTIFICATION

Potential acute health effects	Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Carcinogenic effects	Not available.
Mutagenic effects	Mutagenic for mammalian somatic cells.
Teratogenic effects	Not available.
Developmental toxicity	Not available.
Potential chronic health effects	The substance may be toxic to mucous membranes, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

4. FIRST AID MEASURES

Eye contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious skin contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious ingestion	Not available.

5. FIRE AND EXPLOSION DATA	
Flammability of the product	Non-flammable.
Auto-ignition temperature	Not applicable.
Flash points	Not applicable.
Flammable limits	Not applicable.
Products of combustion	Not available.
Fire hazards in presence of various substances	Metals.
Explosion hazards in presence of various substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.
Fire fighting media and instructions	Not available.
Special remarks on fire hazards	Sodium hydroxide + zinc metal dust causes ignition of the latter. Under proper conditions of temperature, pressure and state of division, it can ignite or react violently with acetaldehyde, allyl alcohol, allyl chloride, benzene-1,4-diol, chlorine trifluoride, 1,2-dichloroethylene, nitroethane, nitromethane, nitroparaffins, nitropropane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane. Sodium hydroxide in contact with water may generate enough heat to ignite adjacent combustible materials. Phosphorus boiled with NaOH yields mixed phosphines which may ignite spontaneously in air. Sodium hydroxide and cinnamaldehyde + heat may cause ignition. Reaction with certain metals releases flammable and explosive hydrogen gas.
Special remarks on explosion hazards	Sodium hydroxide reacts to form explosive products with ammonia + silver nitrate. Benzene extract of allyl benzenesulfonate prepared from allyl alcohol, and benzene sulfonyl chloride in presence of aqueous sodium hydroxide, under vacuum distillation, residue darkened and exploded. Sodium hydroxide + impure tetrahydrofuran, which can contain peroxides, can cause serious explosions. Dry mixtures of sodium hydroxide and sodium tetrahydroborate liberate hydrogen explosively at 230-270 deg. C. Sodium hydroxide reacts with sodium salt of trichlorophenol + methyl alcohol + trichlorobenzene + heat to cause an explosion.

6. ACCIDENTAL RELEASE MEASURES	
Small spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: neutralize the residue with a dilute solution of acetic acid.
Large spill	Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the SDS and with local authorities.

7. HANDLING AND STORAGE	
Precautions	Keep container dry. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis, moisture.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic. Deliquescent.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION	
Engineering controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal protection	Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal protection in case of a large spill	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure limits	STEL: 2 mg/m3 from ACGIH (TLV) [United States]. TWA: 2, CEIL: 2 mg/m3 from OSHA (PEL) [United States]. CEIL: 2 mg/m3 from NIOSH. Consult local authorities for acceptable exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES	
Physical state and appearance	Solid (deliquescent solid), white flakes.
Odor	Odorless.
Taste	Not available.
Molecular weight	40 g/mole
Color	White.
Boiling point	1388 °C (2530.4 °F)
Melting point	323 °C (613.4 °F)
Critical temperature	Not available.
Specific gravity	2.13 (Water = 1)
Vapor pressure	Not applicable.
Vapor density	Not available.
Volatility	Not available.
Odor threshold	Not available.
Water/oil distribution coefficient	Not available.
Ionicity (in water)	Not available.
Dispersion properties	See solubility in water.
Solubility	Easily soluble in cold water.

10. STABILITY AND REACTIVITY	
Stability	The product is stable.
Instability temperature	Not available.
Conditions of instability	Incompatible materials, moisture, moist air.
Incompatibility with various substances	Highly reactive with metals. Reactive with oxidizing agents, reducing agents, acids, alkalis, moisture.
Corrosivity	Not available.
Special remarks on reactivity	Hygroscopic. Much heat is evolved when solid material is dissolved in water. Therefore cold water and caution must be used for this process. Sodium hydroxide solution and octanol + diborane during a work-up of a reaction mixture of oxime and diborane in tetrahydrofuran is very exothermic, a mild explosion being noted on one occasion.

Reactive with water, acids (mineral, non-oxidizing, e.g. hydrochloric, hydrofluoric acid, muriatic acid, phosphoric), acids (mineral, oxidizing e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, formaldehyde), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propyl formate), halogenated organics (dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (acetone, acetophenone, MEK, MIBK), acid chlorides, strong bases, strong oxidizing agents, strong reducing agents, flammable liquids, powdered metals and metals (i.e. aluminum, tin, zinc, hafnium, rane y nickel), metals (alkali and alkaline e.g. cesium, potassium, sodium), metal compounds (toxic e.g. beryllium, lead acetate, nickel carbonyl, tetraethyl lead), nitrides (e.g. potassium nitride, sodium nitride), nitriles (e.g. acetonitrile, methyl cyanide), nitro compounds (organic e.g. nitrobenzene, nitromethane), acetic anhydride, chlorohydrin, chlorosulfonic acid, ethylene cyanohydrin, glyoxal, hydrosulfuric acid, oleum, propiolactone, acrylonitrile, phosphorus pentoxide, chloroethanol, chloroform-methanol, tetrahydroborate, cyanogen azide, 1,2,4,5-tetrachlorobenzene, cinnamaldehyde. Reacts with formaldehyde hydroxide to yield formic acid, and hydrogen.

Special remarks on corrosivity	Very caustic to aluminum and other metals in presence of moisture.
Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION	
Routes of entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
LD50	Not available.
Chronic effects on humans: mutagenic effects	Mutagenic for mammalian somatic cells.
May cause damage to the following organs	Mucous membranes, upper respiratory tract, skin, eyes.
Other toxic effects on humans	Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion.
Lowest published lethal dose	LDL [Rabbit], oral; dose: 500 mg/kg.
Special remarks on chronic effects on humans	May affect genetic material. Investigation as a mutagen (cytogenetic analysis).

12. ECOLOGICAL INFORMATION	
Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the products of biodegradation	The product itself and its products of degradation are not toxic.
Special remarks on the products of biodegradation	Not available.

13. DISPOSAL CONSIDERATIONS	
Waste disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. TRANSPORT INFORMATION	
DOT classification	Class 8: Corrosive material
Identification	Sodium hydroxide, solid. UN 1823, Packing Group II
Special provisions for transport	Not available.

15. OTHER REGULATORY INFORMATION	
US federal and state regulations	Listed (sodium hydroxide): Illinois toxic substances disclosure to employee act; Illinois chemical safety act; New York release reporting list; Rhode Island RTK hazardous substances; Pennsylvania RTK; Minnesota; Massachusetts RTK; New Jersey; Louisiana spill reporting; California Director's List of Hazardous Substances; TSCA 8(b) inventory; CERCLA hazardous substances: 1000 lbs (453.6 kg).
OSHA	Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS	This product is on the European Inventory of Existing Commercial Chemical Substances.
WHMIS (Canada)	CLASS E: Corrosive solid.
DSCL (EEC)	R35: Causes severe burns. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37/39: Wear suitable gloves and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
HMIS (U.S.A.)	Health hazard: 3. Fire hazard: 0. Reactivity: 2.
Personal protection rating	Health: 3. Flammability: 0. Reactivity: 1.
Protective equipment	Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

16. OTHER INFORMATION	
References	Not available.
Other special considerations	Not available.

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