

SODIUM HYDROXIDE

PRODUCT IDENTIFICATION

CAS NO.	1310-73-2	Na — OH
EINECS NO.	215-185-5	
FORMULA	NaOH	
MOL WT.	40	
H.S. CODE	2815.12	

TOXICITY

SYNONYMS Caustic soda; Sodium hydrate; soda lye; Lye; White Caustic; Caustic Flake; Hydroxyde De Sodium (French); Natriumhydroxid (German); Natriumhydroxyde (Dutch); Sodio (Idrossido Di);

RAW MATERIALS

CLASSIFICATION

GENERAL DESCRIPTION

Sodium Hydroxide, commonly known as caustic soda, lye, or sodium hydrate, is a caustic compound which attacks organic matter. (caustic soda is sodium hydroxide, caustic potash is potassium hydroxide and silver nitrate is lunar caustic.) Caustic soda is available commercially in various white solid forms and as a solutions of various concentrations in water. It is very soluble in water, alcohol, and glycerin and absorbs carbon dioxide and moisture from the air. Sodium hydroxide is prepared by the reaction of sodium carbonate (soda) in concentrated solution form with calcium hydroxide (slaked lime). But the principal method for its manufacture is by the electrolysis of brine. (the two current technologies are the diaphragm and the membrane). The electrolyte is saturated brine (about 25% aqueous sodium chloride). The chloride ion is oxidized at the anode to chlorine gas. chlorine gas is a coproduct. Sodium hydroxide is a strong base and inexpensive which find many applications in the chemical industry. Sodium hydroxide provides fuctions of neutralisation of acids, hydrolysis, condensation. saponification and replacement of other groups in organic compounds of hydroxyl ions. The major use of sodium hydroxide is as a chemical and in the manufacture of other chemicals. It is used in textile industry. Sodium hydroxide is used mainly for two processes in textile manufacture. Mercerizing of fibre with sodium and hydroxide solution enables greater tensional strength and consistent lustre. It also removes waxes and oils from fibre to make the fibre more receptive to bleaching and dying. Sodium hydroxide is also used in the production of viscose rayon. Cellulose is extracted from pulp using sodium hydroxide and subsequently treated with high purity sodium hydroxide to produce soda cellulose. Further chemical treatment results in a rayon fibre. This is a declining market due to the competition from synthetic (ie petrochemical) fibres. It is used in making paper and pulp. Sodium hydroxide aids separation of cellulose fibres from lignin; this breaks down wood into pulp. Sodium hydroxide also helps bleach paper to required whiteness and brightness. In alumina production industry, a strong alkali solution separates pure alumina from bauxite ore. Alumina is then recovered through precipitation and finally, calcination. Sodium hydroxide is also widely used in in making soaps and detergents, Sodium hydroxide was originally used for soap manufacture, but now has a wider variety of functions. As well as an extractant and refining agent for certain oils, sodium hydroxide is used to produce active agents, or builders in modern synthetic detergents. Sodium Hydroxide is used for sodium hypochlorite which is used as a household bleach and disinfectant and for sodium phenolate used in antiseptics and

for the manufacture of Aspirin.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	White, deliquescent pellets or flakes
MELTING POINT	318 C
BOILING POINT	1390 C
SPECIFIC GRAVITY	2.13
SOLUBILITY IN WATER	
pH	13 - 14 (0.5% sol.)
VAPOR DENSITY	
AUTOIGNITION	
NFPA RATINGS	Health: 3; Flammability: 0; Reactivity: 1
REFRACTIVE INDEX	
FLASH POINT	Not considered to be a fire hazard
STABILITY	Stable under ordinary conditions

APPLICATIONS

Direct application, (pulp and paper, soaps and detergents, alumina, petroleum, textiles, water treatment,); organic chemicals, (propylene oxide, polycarbonate, ethyleneamines, epoxy resins,); inorganic chemicals, (sodium/calcium hypochlorite, sulfur-containing compounds, sodium cyanide,)

SALES SPECIFICATION

APPEARANCE	White, Free-flowing, Fast Dissolving Flakes
NaOH	99.0% min
Na ₂ O	76.0% min
Na ₂ CO ₃	0.5% max
NaCl	0.1% max
NaSO ₄	0.1% max
Fe ₂ O ₃	0.004% max
HEAVY METALS	20ppm max

TRANSPORTATION

PACKING	25kgs, 50kgs, 1mt in Bag
HAZARD CLASS	8 (Packing group: II)
UN NO.	1823