

Safety Data Sheets

Sodium Hydroxide Solution 50%

Product code: PC-000245

Departement: chemical products

C.A.S. : 1310-73-2, 7647-14-5, 7732-18-5



KAMA
PIGMENTS

Section: 1 Identification

Product name: Caustic Soda, Liquid, 10 - 50 % (8589, 9028, 9101).
Chemical Name: Sodium Hydroxide.
Synonyms: Lye; Soda Lye; Caustic Soda 10 %, 12 %, 15 %, 16 %, 16.6 %, 18 %, 20 %, 21 %, 25 %, 30 %, 31 %, 33 %, 34. 67 % 40 %, 50 %. Grade(s): Caustic Soda 50 % Diaphragm; Caustic Soda 50 % Membrane; Caustic Soda Rayon.
Molecular Formula: NaOH
Product Use: Cleaner. Metal treatment. Water treatment. pH control of water. Neutralizing agent in the petroleum industry. Laboratory reagent. Pulp and paper industry. Chemical intermediate.
WHMIS Classification / Symbol: E: Corrosive

Section: 2 Hazard Identification

Ingredient	CAS#	ACGIH TLV (TWA)	%
Sodium Hydroxide	1310-73-2	-	10 - 50
Sodium Chloride	7647-14-5	-	0 - 2

HGS Label Elements



Signal Word

Danger

GHS Classification

Corrosive to metals-Cat.1
Health Hazards not elsewhere classified (corrosion)-Cat.1
Serious eye damage -eye irritation-Cat.1
Skin corrosion -irritation-Cat.1

Hazard statements

May be corrosive to metals (H290)
Causes severe skin burns and serious eye damage (H314)
Causes severe respiratory tract damage

Precautionary Statements

Wash exposed body parts thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
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.
Immediately call a POISON CENTER or a doctor
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.

Section: 3 Composition / Information on Ingredients

EMERGENCY OVERVIEW:	Corrosive! Harmful if inhaled, absorbed through skin, or swallowed. Causes severe skin and eye burns. Prolonged or repeated exposure may cause discoloration and erosion of teeth. Vapours are extremely irritating to eyes and respiratory tract. See "Other Health Effects" Section. This product is often transported and handled hot. Contact with heated material may cause thermal burns. Can decompose at high temperatures forming toxic gases. Contents may develop pressure on prolonged exposure to heat.
POTENTIAL HEALTH EFFECTS	
Inhalation:	Corrosive! Product may cause severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary oedema (fluid build-up in lungs), and reduction of pulmonary function. Toxic effects may be delayed. Airborne concentration of dust, mist or spray may cause damage to the lung tissue which could produce chemical pneumonia. Can cause injury to entire respiratory tract. See "Other Health Effects" Section.
Skin Contact:	Corrosive! Burns (chemical) can occur if not promptly removed. Concentrated solutions may cause pain and deep and severe burns to the skin. Prolonged and repeated exposure to dilute solutions often causes irritation, redness, pain and drying and cracking of the skin. Prolonged and repeated contact may lead to dermatitis.
Skin Absorption:	Corrosive! Skin absorption is a secondary concern to the continual destruction of tissue while the product is in contact with the skin. Burns (chemical) can occur if not promptly removed.
Eye Contact:	Extremely corrosive! This product causes corneal scarring and clouding. Glaucoma, cataracts and permanent blindness may occur. Prolonged and repeated exposure may cause visual disturbances.
Ingestion:	Corrosive! This product causes severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur.
Other Health Effects:	Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential. May cause chemical pneumonitis bluish lips and skin pulmonary oedema. Pulmonary oedema is the build-up of fluid in the lungs that might be fatal. Symptoms of pulmonary oedema, such as shortness of breath, may not appear until several hours after exposure and are aggravated by physical exertion. (4) Corrosive to all body tissues with which it comes in contact. The effect of local dermal exposure may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness. These effects occur only when the TLV is exceeded. (3) Regardless of concentrations, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with even dilute Sodium Hydroxide solution can cause a high degree of tissue destruction. The latent period, following skin contact during which no sensation of irritation occurs, varies from several hours for 0.4-4% solution to 3 minutes with 25-50% solution. (3)

Section: 4 First Aid Measures

Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.
Skin Contact:	Prompt removal of the material from the skin is essential for all concentrations, whether as a solid, or a concentrated or dilute solution. (3) Prompt removal of the material from the skin is essential. Remove all contaminated clothing and immediately wash the exposed areas with copious amounts of soap and water for a minimum of 30 minutes or up to 60 minutes for critical body areas. Immerse the exposed part immediately in ice water to relieve pain and to prevent swelling and blistering. Place cold packs, ice or wet cloths on the burned area if immersion is not possible. Cover the exposed part with a clean, preferably sterile, lint-free dressing. Obtain medical attention IMMEDIATELY and monitor breathing and treat for shock for severe exposure.
Eye Contact:	Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention IMMEDIATELY. DO NOT give acidic agents (e.g., citrus juices or vinegar) to "neutralize" the alkali. This action may cause an exothermic reaction and burn the esophagus.
Ingestion:	Ingestion is not a likely route of exposure. Do not attempt to give anything by mouth to an unconscious person.
Note to Physicians:	<p>Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.</p> <p>Mucosal injury following ingestion of this corrosive material may contraindicate the induction of vomiting in the treatment of possible intoxication. Similarly, if gastric lavage is performed, intubation should be done with great care. If oral burns are present or a corrosive ingestion is suspected by the patient's history, perform esophagoscopy as soon as possible. Scope should not be passed beyond the first burn because of the risk of perforation.</p> <p>This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed.</p> <p>Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract.</p>

Section: 5 Fire Fighting Measures

Flashpoint (°C)	Flammability Limits in Air (%):
Non-combustible	Autolgnition Temperature (°C) LEL UEL
	Not applicable. Not applicable. Not applicable.
Flammability Class (WHMIS):	Not regulated.
Hazardous Combustion Products:	Thermal decomposition products are toxic and may include oxides of sodium.
Unusual Fire or Explosion Hazards:	Not normally a fire hazard. Water content of product prevents ignition. Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Closed containers exposed to heat may burst. Spilled material may cause floors and contact surfaces to become slippery.
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.
Rate of Burning:	Not available.
Explosive Power:	Not available.
Sensitivity to Static Discharge:	Not expected to be sensitive to static discharge.
Fire Extinguishing Media:	Use media appropriate for surrounding fire and/or materials.
Instructions to the Fire Fighters:	Isolate materials that are not involved in the fire and protect personnel. Remove containers from fire zone whenever possible.
Fire Fighting Protective Equipment:	Use self-contained breathing apparatus and protective clothing. Protective clothing for skin and eye protection should be worn to protect against highly alkaline materials. See section 8.

Section: 6 Accidental Release Measures

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.
Containment and Clean-Up Procedures: See Section 13, "Deactivating Chemicals". In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Collect product for recovery or disposal. For release to land, or storm water runoff, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment. Spilled material may cause floors and contact surfaces to become slippery. Wear respirator, protective clothing and gloves. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Replace damaged containers immediately to avoid loss of material and contamination of surrounding atmosphere.

Section: 7 Handling And Storage

HANDLING

Handling Practices:

Use normal "good" industrial hygiene and housekeeping practices. Containers exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. When diluting, add this material/product to water in small amounts to avoid spattering. Never add water to this material/product. The water should be lukewarm. Never start with hot or cold water.

Add small quantities of this material slowly to large quantities of water, stirring constantly all the while. Constant stirring is necessary to avoid concentration of the product at the bottom of the mix vessel. Such concentration of the product may result in a violent exotherm with boiling of the liquid resulting in splashing, spattering or a violent eruption of a highly corrosive solution if the addition is too rapid or without sufficient stirring. Clean all containers of residues before adding the product. This will avoid potential violent reaction with unknown residues. (3)

Ventilation Requirements:

See Section 8, "Engineering Controls".

Other Precautions:

Use only with adequate ventilation and avoid breathing aerosols (vapours or mists). Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

STORAGE

Storage Temperature (°C):

See below.

Ventilation Requirements:

Ventilation should be corrosion proof.

Storage Requirements:

Hazardous carbon monoxide can form upon contact with food and beverage products in enclosed spaces and can cause death. Do not store near oxidizing agents or acids. Store in a cool, well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Do not expose sealed containers to temperatures above 40° C. Storage tanks should be in a contained area to control any spills or leaks.

Corrosive mist is most likely to be generated at the vents of process or storage tanks, especially during filling operations. The use of compressed air to force corrosive materials from delivery trucks is of special concern. Scrubbing the exhaust of these vents is highly recommended. Jurisdictional regulations should be consulted to determine required practices. Protect from direct sunlight. Protect against physical damage.

Special Materials to be Used for Packaging or Containers: Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Equipment for storage, handling or transportation should NOT be made of: aluminum, copper, zinc, tin, lead, bronze, brass, Chromium and Magnesium. Attacks some types of rubber, plastics and coatings. Confirm suitability of any material before using.

Section: 8 Exposure Control/Personal Protection

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product.

Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

EXPOSURE GUIDELINES

SUBSTANCE	ACGIH TLV (STEL)	OSHA PEL (TWA) (STEL)	NIOSH REL (TWA) (STEL)
Sodium Hydroxide	2 mg/m ³ (Ceiling)	2 mg/m ³ -	- 2 mg/m ³ (Ceiling)

Engineering Controls: Local exhaust ventilation required. Ventilation should be corrosion proof. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense vapours may collect.
For personnel entry into confined spaces (i.e. bulk storage tanks) a proper procedure must be followed. It must include consideration of, among other things, ventilation, testing of tank atmosphere, provision and maintenance of SCBA, and emergency rescue. Use the "buddy" system. The second person should be in view and trained and equipped to execute a rescue. (6)

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection: Safety glasses with side shields are recommended to prevent eye contact. Use full face-shield and chemical safety goggles when there is potential for contact. Contact lenses should not be worn when working with this material.

Skin Protection: Gloves and protective clothing made from butyl rubber, neoprene, natural rubber, nitrile rubber or PVC should be impervious under conditions of use. Discard contaminated gloves. Prior to use, user should confirm impermeability.
Do not use gloves or protective clothing made from polyvinyl alcohol (PVA). Exposed skin areas should be protected as appropriate whenever the potential for skin contact exists (consider long sleeves, gloves, aprons, etc.).

Respiratory Protection: No specific guidelines available. A NIOSH/MSHA-approved full facepiece air-purifying respirator equipped with dust, mist, fume cartridges for concentrations up to 10 mg/m³. An air-supplied respirator if concentrations are higher or unknown.
Immediately dangerous to Life and Health (IDLH) value: 10 mg/m³. The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory equipment. In the event of failure of respiratory protective equipment, every effort should be made to exit immediately. (4)

Other Personal Protective Equipment: Wear an impermeable apron and boots. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

Section: 9 Physical and Chemical Properties

Physical State:	Liquid.
Appearance:	Clear, colourless liquid.
Odour:	Odourless.
Odour Threshold (ppm):	Not available
Boiling Range (°C):	140 - 144 (50 %). (3)
Melting/Freezing Point (°C):	5 - 12 (50 %). (3)
Vapour Pressure (mm Hg at 20° C):	1.5 (50 %). (3)
Vapour Density (Air = 1.0):	Not available.
Relative Density (g/cc):	1.11 (10 %); 1.22 (20 %); 1.33 (30 %); 1.43 (40 %); 1.53 (50 %). (3)
Bulk Density:	1 110 - 1 530 kg/m ³ .
Viscosity:	Not available.
Evaporation Rate (Butyl Acetate = 1.0):	Not available.
Solubility:	soluble in water.
% Volatile by Volume:	Not applicable.
pH:	14.0 (5 % solution). (3)
Coefficient of Water/Oil Distribution:	Not available
Volatile Organic Compounds (VOC):	Not available
Flashpoint (°C):	Non-combustible (does not burn).

Section: 10 Stability And Reactivity

Under Normal Conditions:	Stable.
Under Fire Conditions:	Not normally a fire hazard. Water content of product prevents ignition.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Avoid moisture contamination. Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Keep tightly closed to protect quality.
Materials to Avoid:	Strong oxidizing and reducing agents. Halogenated compounds. Trichloroethylene. Nitromethane. Violently reactive with: aldehydes, organic materials and Acids. Organic materials. Combustibles. Organic Halides Strong bases. May react with organohalogen compounds to form spontaneously combustible compounds. May react explosively with nitro- and chloro-organic compounds, glycols and organic peroxides. Violently polymerizes acetaldehyde, acrolein, and acrylonitrile. Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Solutions are slightly corrosive to metals. Aluminum and its alloys Zinc and its alloys. Copper and its alloys. Tin. Galvanized Materials. Bronze. Brass. Lead. Chromium. Magnesium. Alkali metals. Attacks some types of rubber, plastics and coatings. Potentially deadly carbon monoxide gas can form in enclosed areas or enclosed tanks when alkaline products contact food or beverage products that contain sugars. (3)
Decomposition Products:	Thermal decomposition products are toxic and may include oxides of sodium.

Section: 11 Toxicological Information

SUBSTANCE:	LD50 (Oral, Rat):	LD50 (Dermal, Rabbit):	LC50 (Inhalation, Rat,
	4h)		
Sodium Hydroxide	-	1 350 mg/kg (3)	-
Carcinogenicity Data:	The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP. See "Other Studies Relevant to Material".		
Reproductive Data:	No adverse reproductive effects are anticipated.		
Mutagenicity Data:	No adverse mutagenic effects are anticipated.		
Teratogenicity Data:	No adverse teratogenic effects are anticipated.		
Respiratory / Skin Sensitization Data:	None known.		
Synergistic Materials:	None known.		
Other Relevant studies :	Many publications in the scientific literature confirm the severely irritating properties of acute and shortterm exposure to Sodium Hydroxide in humans and animals and discuss toxic effects (such as death, eye damage or changes in lung morphology), which are probably		

related to the corrosive properties of this compound. (3)

Inhalation of unmeasured concentrations 30 minutes per day for 2.5 months resulted in lung damage in rats. A rodent drinking water study at 1% (duration unknown) was reported to result in "nervous symptoms" and growth retardation. Growth was unaffected in this same study at 0.5%, but no conceptions occurred. (3)

No tumors were seen in any longer term animal studies. Sodium Hydroxide produced no genetic changes in standard tests using bacterial cells. No significant increases in mortality in relation to duration or intensity of exposures were reported in an epidemiologic study of a small group of workers exposed to caustic dusts for 30 years or more. (3)

Massive ingestion of Sodium Hydroxide has been implicated as causing esophageal cancer. Squamous cells carcinomas of the esophagus occurred approximately 12-42 years later in individuals who survived accidental childhood ingestion and are likely due to the tissue destruction and possible scarring of the esophagus rather than a direct effect of Sodium Hydroxide. (3)

Section: 12 Ecological Information

Ecotoxicity:	Toxicity is primarily associated with pH. This product is toxic to Aquatic Life.
Sodium Hydroxide:	LC50 (24-hr) = 25 ppm (Brook trout). (3) LC50 (48-hr) = 33 - 100 ppm (Shrimp). (3) LC50 (48-hr) = 220 - 1000 ppm (Cockle). (3)
Environmental Fate:	This material is not expected to bioaccumulate. (3) Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. Sodium Hydroxide has no biological oxygen demand. (3) There is limited information available on the environmental fate and effects of Sodium Hydroxide. Laboratory toxicity data indicate that Sodium Hydroxide is moderately toxic to aquatic and terrestrial organisms. The primary mode of action is due to the corrosive nature of this chemical and its tendency to increase pH in poorly buffered environments. Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH levels in excess of 10. Increased pH due to the introduction of Sodium Hydroxide into aquatic environments may lead to the precipitation of essential micronutrients. Exposed terrestrial species would be subject to skin irritation and burns due to the corrosive nature of this material. Due caution should be exercised to prevent the accidental release of this material to aquatic or terrestrial environments. (3)

Section: 13 Disposal Considerations

Deactivating Chemicals:	Neutralize carefully with weak acid to a pH of 6 to 9. Neutralization is expected to be exothermic. Effervescence may result. Add a liberal covering of sodium bicarbonate. Confirm pH using pH paper.
Waste Disposal Methods:	This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.
Safe Handling of Residues:	See "Waste Disposal Methods".
Disposal of Packaging:	Empty containers retain product residue and can be dangerous. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. Treat package in the same manner as the product.

Section: 14 Transport Information

CANADIAN TDG ACT SHIPPING DESCRIPTION:

SODIUM HYDROXIDE SOLUTION, Class 8, UN1824, PG II.

Label(s): Corrosives.

Placard: Corrosives.

ERAP Index: -----.

Exemptions: None known.

US DOT CLASSIFICATION (49CFR 172.101, 172.102):

SODIUM HYDROXIDE SOLUTION, Class 8, UN1824, PG II.

Label(s): Corrosive.

Placard: Corrosive.

CERCLA-RQ: 1 000 lb / 454 kg.

Exemptions: None known.

Section: 15 Regulatory Information

CANADA

CEPA - NSNR:

All components of this product are included on the DSL.

CEPA - NPRI:

Not included.

Controlled Products Regulations Classification (WHMIS):

E: Corrosive

USA

Environmental Protection Act:

All components of this product are included on the TSCA inventory.

OSHA HCS (29CFR 1910.1200):

Corrosive.

NFPA:

3 Health, 0 Fire, 1 Reactivity (3)

HMIS:

3 Health, 0 Fire, 1 Reactivity (3)

INTERNATIONAL

Sodium Hydroxide is found on the following inventories: EINECS (European Inventory of Existing Commercial Chemical Substances),

Section: 16 Other Information

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
5. Guide to Occupational Exposure Values, 2011, American Conference of Governmental Industrial Hygienists, Cincinnati, 2011.

Prepared by

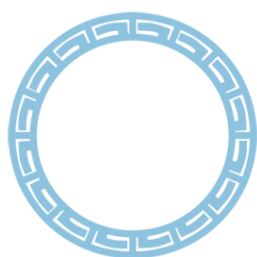
Kama pigments

Disclaimer:

Kama pigments, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information, refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Kama pigments Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Kama pigments makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Kama pigments' control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.



KAMA
PIGMENTS

Last revision: 2022-06-13

