

LIQUID CAUSTIC SODA (Sodium Hydroxide)

Mercury Grade

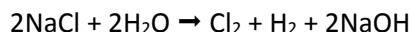
CAS Number:	1310-73-2	Refer to the Safety Data Sheet (SDS) for additional information and before handling this material.
Synonyms:	sodium hydroxide, caustic soda, caustic, lye	
Chemical Formula:	NaOH	
Molecular Weight:	40.0	
Description:	Caustic soda solutions are colorless and strongly alkaline. They are not combustible and do not support combustion.	

Product Overview

Caustic soda is an essential ingredient in many industrial and commercial applications. It is a strong, colorless alkali. Caustic soda is manufactured through the electrolysis of sodium chloride (salt brine). Westlake produces liquid caustic soda as 50% and 73% solutions in water. Westlake is one of the largest global producers of caustic soda, with six plants in the United States (Calvert City, Kentucky; Geismar, Lake Charles and Plaquemine, Louisiana; Natrium, West Virginia; and Longview, Washington), one in Canada (Beauharnois, Quebec), and a network of bulk terminals throughout North America.

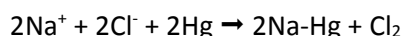
Production

Westlake manufactures sodium hydroxide along with chlorine via the chlor-alkali electrolysis process. Electrolysis is an electrochemical reaction using direct current to drive the decomposition reaction of an aqueous solution of sodium chloride (also called brine) into sodium hydroxide, chlorine and hydrogen gas.

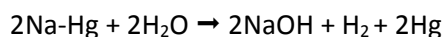


There are several variations in electrolytic cell design which effect product characteristics. Westlake employs all three cell types, diaphragm, mercury, and membrane, in production of liquid caustic soda. The mercury cell design is substantially different from the other two. (For details regarding the diaphragm and membrane cell process, please refer to Westlake Chemical's Liquid Caustic Soda Diaphragm and Membrane Grades Product Stewardship Summary.) Rather than chlorine and sodium hydroxide being formed simultaneously in one cell, two distinct processes are employed to form the caustic solution.

In the mercury cell, sodium brine flows between a stationary anode and a moving mercury metal cathode. Chlorine is produced at the anode, but the mercury cathode forms an amalgam with the newly formed sodium metal. This reaction takes place on the surface of the mercury with energy driving the reaction.



This amalgam is fed to another cell for decomposition. It reacts with water to form the caustic solution and hydrogen gas, reforming the mercury to be recycled as cathode for the original electrolytic cell.



This resulting sodium hydroxide aqueous solution is very high purity, and has very low salt content. After the initial energy output in the mercury cell, little additional energy is required to finish the product as the caustic is recovered at approximately 50% concentration from the mercury amalgam.

Uses

Caustic soda has a wide variety of applications based primarily on its ability as a strong alkali to react with many substances. It is a stronger base and faster reactant than other alkalis. It is much more stable in water and can be economically stored and transported in liquid form. It also does not form undesirable by-products such as carbon dioxide or other insoluble carbonates. The largest uses for caustic soda are pulp and paper manufacturing, alumina production, de-inking of waste paper, water treatment, and general chemistry. Caustic soda is a basic feedstock in the manufacture of a wide range of chemicals. It is used as an intermediate and a reactant in processes that produce solvents, plastics, synthetic fibers, bleach, adhesives, coatings, herbicides, dyes, inks, and pharmaceuticals such as aspirin. It is also used in soap and detergent, oil and gas, and textile industries as well as to neutralize acidic waste streams and the scrubbing of acidic components from off-gases. With all downstream applications, appropriate registrations and/or approvals may be required. Possible uses are described below:

- **Chemical Production** - The chemical industry consumes nearly 40% of the caustic soda produced as a basic reagent for a multitude of general industrial applications.
- **Pulp and Paper** - Both sulfate and sulfite pulps are purified by removing lignin compounds in the caustic extraction stages of multistage bleach plants. In some kraft mills, caustic soda is used as a makeup chemical. It is also used as the initial treatment in de-inking secondary fibers.
- **Rayon and Cellophane** - Fiber production by the viscose process requires caustic soda at two main stages. Cellulose is treated with caustic soda solution to mercerize it and form alkali cellulose, which is then dissolved in dilute caustic soda solution to form viscose prior to extruding rayon fibers and cellophane films.
- **Alumina Extraction** - Caustic soda is used to digest bauxite ore, precipitating alumina (aluminum oxide). It is also used as an etchant in the finishing and chemical milling of aluminum products.
- **Soapmaking** - Caustic soda saponifies fats into water soluble sodium soaps.
- **Textiles** - Used in scouring, bleaching, desizing, lustering and mercerizing.
- **Petroleum Production and Refining** - Caustic soda is used as an absorbent for carbon dioxide in light petroleum fractions; as an absorbent for sulfides in the purification of various fractions; and with chlorine for hypochlorite sweetening, a treatment step in the removal of various sulfur compounds.
- **Soda Ash Replacement** - Caustic soda can be used interchangeably for many applications in glass, paper, pulp, phosphates and silicates industries.
- **Renewable Fuels** - Caustic soda is used for pH adjustment and formation of in situ sodium methylate in bioethanol and biodiesel processing.

Health Effects

Read and follow all instructions on the product label and review the Safety Data Sheet (SDS) to understand and avoid the hazards associated with caustic soda. Wear appropriate personal protective equipment and avoid direct contact. Eye contact with caustic soda causes serious eye damage including irreversible damage and blindness. Skin contact causes severe burns. Ingestion of caustic soda may cause irreversible damage to gastrointestinal mucous membranes, upper airway edema and is often life threatening. Inhalation of caustic soda may cause cough and bronchospasm. Inhalation of high concentrations may cause irreversible damage, including upper airway edema and corrosive burns.

The United States Occupational Safety and Health Administration (OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH) have established or recommended occupational airborne exposure limits for caustic soda. The OSHA Permissible Exposure Limit (PEL) is an 8 hour Time-Weighted Average (TWA) of 2 mg/m³ (milligrams per cubic meter). The ACGIH Threshold Limit Value (TLV) is a Ceiling Limit of 2 mg/m³. A Ceiling Limit should not be exceeded during any part of the working exposure.

Before handling, it is important that engineering controls are operating and protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use and should be given the opportunity to review this document and the safety data sheet.

Environmental Effects

Caustic soda should be kept out of lakes, streams, ponds, or other water sources. Caustic soda does not bioaccumulate due to its high solubility in water.

Exposure Potential

Precautions should be taken to minimize potential harm to people, animals and the environment. Potential for exposure may vary depending upon site-specific conditions. When handling caustic soda, refer to the Safety Data Sheet and Product Warning Label and follow all instructions and warnings. Based on the expected uses for caustic soda, exposure could be through:

- **Workplace exposure** - Exposure can occur either in a caustic soda manufacturing facility or in the various industrial facilities that use caustic soda. Caustic soda has been used for more than 100 years by industry. When exposures occur, they are most frequently to the skin and eyes, although oral exposure and ingestion are possible. Good industrial hygiene practices and the use of personal protective equipment will, when combined with proper training and environmental, health and safety practices, mitigate exposures and ensure a safe work environment. Additionally, most processes using caustic soda use closed tanks and vessels.
- **Environmental releases** - In the event of a spill, contain the spill to prevent contaminated soil, surface or ground water. Caustic soda can significantly increase the pH of soil and/or water. Industrial spills (releases to soil or water) should be controlled by workplace spill programs which include containment around loading and unloading operations and storage tanks and employee training. Many aspects of a spill control program are mandated by federal, state and local requirements. In addition, if a spill occurs, governmental reporting may be required. Refer to the Safety Data Sheet for instructions to contain and clean up a spill to minimize exposure.
- **Consumer exposure** - Caustic soda is not sold directly to consumers; however it is an ingredient in some consumer products. Westlake cannot and does not make any representation or conclusion about consumer exposure risks associated with its customers' products. In any case, keep all chemical products out of the reach of children.

Safe Handling and Storage

Always take precautions to minimize potential harm to people, animals, and the environment. When making solutions or diluting, caustic soda should only be added slowly to the surface of cold water while stirring. Do not add to warm or hot water because a violent eruption or an explosive reaction can result. Do not add water to caustic soda. Avoid contact with organic materials and concentrated acids as this may cause violent reactions.

Besides reacting vigorously with many organic and inorganic materials, caustic soda is highly corrosive to certain metals including aluminum, magnesium, zinc, tin, chromium, brass, and bronzes made with zinc or tin. Since the galvanizing process utilizes zinc, liquid caustic soda will corrode galvanized iron surfaces. The reaction may be dangerous because hydrogen is generated and may introduce an explosion hazard. Caustic soda can also react with various food sugars to generate hazardous carbon monoxide gas.

The dilution of caustic soda solutions produces considerable heat and may cause boiling, spattering, or violent eruption. Workers should have proper training and experience in dilution procedures and exercise caution. Since

caustic soda is shipped hot (50% solution at 100°-180°F and 73% solution at 225°-255°F), downstream customers should be careful when unloading and repackaging it.

Liquid Caustic Soda becomes more viscous and harder to handle as it approaches its solidification point, at which it becomes solid. Downstream customers should ensure that equipment and procedures are in place to ensure safe handling of the caustic at temperatures involved, which may include the need to heat or maintain temperature of the material.

Packaging and Shipping

Westlake ships Liquid Caustic Soda in tank trucks, tank cars, barges, and ocean going tankers.

- **Tank cars** - Single compartment rail cars are available with nominal capacities of 50 dry short tons
- **Tank trucks** - Westlake ships liquid caustic in bulk tanks trucks with a capacity of 11-16 dry short tons in the United States and from 11 to 20 dry short tons in Canada.
- **Barges** - Westlake moves liquid caustic along the US river systems in 700 dry short ton capacity barges.
- **Ocean Tanker Ships** - Westlake is one of the few US producers with the ability to load oceanic tanker ships. Customizable capacities are available.

Fire and Explosion Hazards

Caustic soda by itself is nonflammable and nonexplosive. However, caustic soda is highly corrosive to many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.

During a fire, promptly isolate the scene by removing all persons from the vicinity of the incident. No other action shall be taken without suitable training. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Physical and Chemical Properties

Liquid caustic soda is odorless and colorless. Caustic soda reacts readily with metals such as aluminum, magnesium, zinc, tin, chromium, bronze, brass, copper, and alloys containing these metals. Galvanized (zinc coated) materials and contact with acids, halogenated organics, organic nitro compounds, and glycol should be avoided. Caustic soda reacts with most animal tissue, including leather, human skin, and eyes. It also reacts readily with various reducing sugars (i.e., fructose, galactose, maltose, dry whey solids) to produce carbon monoxide. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed vessels and can cause death.

Properties of Liquid Caustic Soda	50%	73%
Boiling Point	288°F (142°C)	372°F (189°C)
Melting Point (crystallization begins)	50-55°F (10-13°C)	140-144°F (60-62°C)
Solidification Point	41°F (5°C)	140°F (60°C)
Specific Gravity	1.53 @15.6°C	1.71 @90°C
pH at 20°C	> 12.5	> 12.5

Regulatory Information

The following regulatory information is provided as a supplement to the information already included on the Liquid Caustic Soda's safety data sheet.

North American Regulatory Information

- **CONEG Regulation/Model Toxics in Packaging Legislation** - Lead, cadmium, mercury and hexavalent chromium are not intentionally added to Liquid Caustic Soda, and based on the formula and Westlake's experience with the product, the sum of the incidental concentration levels of these metals is not expected to exceed 100 parts per million (ppm) by weight.
- **RCRA** - Commercial grade Liquid Caustic Soda if discarded or spilled, as well as other wastes generated during use of sodium hydroxide or containing sodium hydroxide may exhibit one or more hazardous waste characteristics under 40 CFR 261.24, including D002 – corrosive. (Note: Westlake provides information on U.S. hazardous waste criteria for the product as manufactured. It remains the obligation of the user to evaluate their specific waste and to manage, treat, and dispose of unused material, residues, and containers in accordance with applicable federal, state, and local requirements.)
- **VOC Information** – Liquid Caustic Soda does not contain constituents that qualify as volatile organic compounds (VOC) based on the definition in 40 CFR 51.100.
- **HAP Information** – Sodium hydroxide is not a hazardous air pollutant (HAP) as listed in the Clean Air Act Amendments of 1990, 42 USC 7412 (b).
- **Ozone-Depleting Chemicals** – Liquid Caustic Soda is not/does not contain ozone depleting chemicals (40 CFR 82, Subpart A, Appendix F).
- **Toxic Pollutants / Priority Pollutants** – Sodium hydroxide is not listed as a toxic pollutant/priority pollutant in 40 CFR 401.15 and/or 40 CFR 423 Appendix A.
- **CERCLA Hazardous Substance** – Liquid Caustic Soda (sodium hydroxide) appears in the List of Hazardous Substances and Reportable Quantities table (40 CFR 302.4) with a reportable quantity (RQ) of 1,000 pounds (454 Kg).
- **TSCA Information** - All of the components of Liquid Caustic Soda are listed on the TSCA inventory as active under TSCA Section 8(b). This product is not currently subject to any rule or order under TSCA Sections 4, 5(a), 5(e), 6(a), 7, or 12(b).
- **California Proposition 65** – Although Liquid Caustic Soda is not sold directly to consumers, this product can expose you to chemicals which are known to the State of California to cause cancer, and are known to the State of California to cause birth defects or other reproductive harm.
- **Washington State Children's Safe Product Act (CSPA)** – Liquid Caustic Soda contains a component at trace levels that is listed under the Children's Safe Product Act (CSPA, 70.240).
- **U.S. Food and Drug Administration** - Sodium Hydroxide is designated by FDA as a food additive Generally Recognized as Safe (GRAS) when used in accordance with good manufacturing practices (21 CFR 184.1763). It is specifically approved for use as a direct and indirect Food Additive, and in the manufacture of a number of Food Substances. The following FDA citations provide a partial list of approvals: 21 CFR 172.560 (Modified Hop Extract Additive manufacture), 21 CFR 172.814 (Hydroxylated Lecithin manufacture), 21 CFR 172.892 (Food Starch-Modified, modified up to 1%), 21 CFR 173.310 (Boiler Water Additive), 21 CFR 177.1600 (Polyethylene Resins, Carboxyl Modified). It is also cleared for use as a reactant to produce soaps used in the formulation of defoaming agents for: 21 CFR 176.210 (Paper and Paperboard Production); 21 CFR 175.105 (Adhesives), and 21 CFR 178.3120 (Animal Glue). For additional information, see 21 CFR or contact your customer service representative.

- **Canadian Food Inspection Agency (CFIA)/Agence Canadienne d'Inspection des Aliments (ACIA)** – Liquid Caustic Soda manufactured at Beauharnois, Quebec, Canada is acceptable for use with food in Registered Establishments per CFIA provided that the label instructions are followed.
- **Registration of Food Facilities (FDA Bioterrorism Act of 2002 Section 305)** - The following facilities have been registered with the FDA: Beauharnois, Quebec, Canada; Calvert City, Kentucky, USA; Geismar, Louisiana, USA; Lake Charles, Louisiana, USA; Longview, Washington, USA; Plaquemine, Louisiana, USA ; and Natrium, WV, USA.
- **Canada DSL/NDL Inventory** - All components of Liquid Caustic Soda are listed on the Canadian Domestic Substances List (DSL); no components are listed on the Non-Domestic Substances List.

European Regulatory Information

- **RoHS/WEEE** – Liquid Caustic Soda has been reviewed with regard to the EU Directive 2011/65/EU “Restriction on the Use of Certain Hazardous Substances” (RoHS 2) and Directive 2015/863/EU “Amending Annex II to Directive 2011/65/EU ...as Regards the List of Restricted Substance” (RoHS 3 – Effective July 22, 2019). Based on our knowledge of this product and information on the raw material suppliers’ Safety Data Sheets, this product does not contain cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), bis (2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), or diisobutyl phthalate (DIBP) at levels greater than the tolerated maximum concentration values established by the directive.
- **Europe REACH** – Sodium hydroxide is considered a substance under REACH. Sodium hydroxide is not, and does not contain Substances of Very High Concern (SVHC) in amounts greater than 0.1% as published in accordance with Article 59(10) of the REACH Regulation as of July 2018, nor does this product contain any substances on Annex XIV (Authorisation List). Sodium hydroxide has been registered in accordance to the REACH regulations. Westlake’s customers importing Westlake’s sodium hydroxide may be covered by agreement under Westlake’s REACH registration if requirements and uses are reviewed and approved by Westlake.
- **European Food Additive/Contact** – Sodium hydroxide is an approved Food Additive in the European Union as listed in EU No 231/2012 with the identifier E 524.
- **Germany Federal Agency for Agriculture and Food BfR Recommendations on Food Contact Materials** - Sodium hydroxide is listed as approved for use in BfR Recommendation XXXVI/2: Paper and Paperboard for Baking Purposes, Section II.B – Production Aids-Precipitating, Fixing and Parchmentisation Agents.

Asia-Pacific Regulatory Information

- **Australia Inventory of Chemical Substances (AICS)** - All components of Liquid Caustic Soda are listed or compliant with the Australia Inventory of Chemical Substances.
- **China Inventory of Existing Chemical Substances (IECSC)** - All components of Liquid Caustic Soda are listed or compliant with the China Inventory of Existing Chemical Substances.
- **Japanese Existing and New Chemicals Inventory (ENCS)** - All components of Liquid Caustic Soda are listed or compliant with the Japanese Existing and New Chemicals Inventory.
- **Korean Existing Chemicals Inventory (KECI)** - All components of Liquid Caustic Soda are listed or compliant with the Korean Existing Chemicals Inventory.
- **New Zealand Inventory of Chemicals (NZIoC)** - All components of Liquid Caustic Soda are listed or compliant with the New Zealand Inventory of Chemicals.
- **Philippine Inventory of Chemicals and Chemical Substances (PICCS)** - All components of Liquid Caustic Soda are listed or compliant with the Philippine Inventory of Chemicals and Chemical Substances.

- **Taiwan Existing Chemical Notification List** - All components of Liquid Caustic Soda are listed or compliant with the Taiwan Existing Chemical Notification List.
- **Turkey Chemical Inventory** - All components of Liquid Caustic Soda are listed or compliant with the Turkey Chemical Inventory.

Product Certifications and Listings

- **Kosher Certification** – Westlake’s Liquid Caustic Soda is not Kosher Certified. However, liquid caustic soda, including the equipment used in its manufacture, does not come into contact with or contain any animal by-products, animal fats, or animal products, nor does it contain chemical additives that are organic in nature. According to the current policies of the Orthodox Union (OU) caustic soda is acceptable for use in Kosher-related activities without Kosher certification.
- **Halal Certification** - Westlake’s Liquid Caustic Soda is not Halal Certified. However, caustic soda does not contain alcohol, natural L-cysteine extracted from hair or feathers, animal fats and/or extracts, blood of any origin, blood plasma, pork, or other meat byproducts. Alcohol is not used as processing aid. As such, this product may be acceptable for Halal consideration.
- **American Water Works Association Standard** - Liquid Caustic Soda conforms to the chemical identity, physical composition and packaging requirements of the AWWA Standard for Sodium Hydroxide (caustic soda), ANSI/AWWA B501-08.
- **NSF Standard 60 Drinking Water Treatment Chemicals** - Liquid Caustic Soda has the Health Effects listing, and each grade is certified for maximum use levels as noted on the NSF website, which can be viewed at www.nsf.org/certified/PwsChemicals.
- **NSF White Book** - The NSF International White Book Listings of USDA Authorized or NSF Registered Nonfood Compounds for this product are A2 (Cleaning Products - Soak Tank, Steam/Mechanical Cleaners), G6 (Water Treatment Products - Boiler, Steam Line Products - Food Contact All Areas), 3B (Food Processing Substances - Hog Scald Agents), 3C (Food Processing Substances - Triple Denuding, Bleaching and Neutralizing Agents), and L1 (Sewer and Drain Cleaners -General). These can be viewed on www.nsf.org/usda/psnclistings.asp.
- **USP/NF Residual Solvents** - Although only technically applicable to dry caustic soda, Westlake does not use any Class 1, Class 2 or Class 3 (or any combination thereof) residual solvents, as denoted within USP Chapter <467>, during the manufacture of caustic soda products.
- **ISO 9001 Certification** - The following Liquid Caustic Soda manufacturing facilities are ISO 9001 certified: Beauharnois, Quebec, Canada; Calvert City, Kentucky; Geismar, Lake Charles and Plaquemine, Louisiana; and Natrium, West Virginia.

Additional Product Information

- **Source** – Liquid Caustic Soda is derived from a mineral source and has not been derived from plant, animal, synthetic, petroleum or fermentation sources.
- **Allergenic Materials** -
The following allergenic materials are not used in the manufacture of Mercury Grade Liquid Caustic Soda:

Potential Allergen	Including
Bee Products & Derivatives	honey, pollen, propolis, royal jelly
Buckwheat Products & Derivatives	
Celery Products & Derivatives	celery seeds
Cocoa Products & Derivatives	
Coconut Products & Derivatives	
Crustacean Products & Derivatives	crab, crayfish, lobster, shrimp/prawn

The following allergenic materials are not used in the manufacture of Mercury Grade Liquid Caustic Soda:

Potential Allergen	Including
Dairy Products & Derivatives	cow's milk/cream, goat's milk/cream, powdered milk, butter/butter solids, butterfat, buttermilk, milk fat, casein, whey, curds, custard, cheese, yogurt, lactalbumin, lactoglobulin, lactose
Egg Products & Derivatives	albumin, egg whites, egg yolks, eggnog, ova albumin, ovomucoid, powdered eggs, mayonnaise, meringue
Fish Products & Derivatives	abalone, anchovy, bass, cod, flounder, herring, mackerel, pollock, salmon roe, sardine, tuna, whitefish
Fruit Products & Derivatives	apple, apricot, banana, cherry, grapefruit, kiwi, orange, peach, plum, tomato
Grain Products & Derivatives	wheat, rice, rye, oats, barley, spelt, kamut
Cinnamon Products & Derivatives	
Legume Products & Derivatives	alfalfa, beans (green, kidney, lima, navy, wax)
Carob	
Lentils	
licorice	
locust bean gum	
Peas	
Lupin Products & Derivatives	
Meat Products & Derivatives	beef, chicken, pork
Mollusk Products & Derivatives	abalone, clam, cuttlefish, mussel, octopus, oysters, periwinkle, sassia scallops, snail, squid, whelk
Mushroom Products & Derivatives	matsutake
Mustard Products & Derivatives	
Peanut Products & Derivatives	peanut butter, peanut meal, peanut protein, peanut flour
Plant Nuts/Seeds/Oils	safflower, canola
Potato Products & Derivatives	
Seed Products & Derivatives	cotton, poppy, sesame, sunflower
Protein Hydrolysates, Soybean Products & Derivatives	soy, miso, tofu, bean cured, edamame, isolated soy protein, hydrolyzed soy protein, textured soy protein, soy milk, soy sauce, soy nuts, soy flour, soy lecithin
Spices	
Sulfates/Sulfites & Derivatives	sulfur dioxide, sodium metabisulfites, sodium bisulfite
Tree Nut Products & Derivatives	almonds, brazil nut, cashew, chestnut, filberts, hazelnut, hickory, macadamia, pecans, pine nuts, pistachio, queensland nut, walnuts
Yam Products & Derivatives	

- **Additives/Preservatives/Flavorings** - The following are not used by Westlake facilities in the manufacture of Liquid Caustic Soda:

Adipate	Ethylene Oxide	PAH
Artificial Colors/Color Additives	Free Glutamate	Phosphates
Benzopyrene	Gelatin	Phthalates
BPA (Bisphenol A)	Hormones	Potassium Bromate
Caramel Color	Iodine	Psyllium
Chloramphenicol	Jatropha Plant	Sodium Benzoate
DEHP	Lactose	Sorbic Acid
Diacetyl	Latex	Starch
Diethylene Glycol	Maleic Acid	Sudan Red
Dioxin	Melamine	Titanium Dioxide
Diphenylamine	MSG	4-Methylimidazole
DMAA	Palm Oil	
Dyes/Food Dyes	Parabens	

- **Bovine Spongiform Encephalopathy** - Liquid Caustic Soda is not of animal origin, and, to Westlake's knowledge, does not contribute to Transmissible Spongiform Encephalopathy (TSE)/Bovine Spongiform Encephalopathy (BSE).
- **Genetically Modified Organisms (GMOs)** - Liquid Caustic Soda is not manufactured with and does not contain genetically modified organisms.
- **Natural Latex Rubber** - Liquid Caustic Soda is not manufactured with and does not contain natural latex rubber as defined in 21 CFR 801.437(b)(1).
- **Nutritional Value** - Liquid Caustic Soda does not have nutritional value.
- **Partially Hydrogenated Oils (PHOs)** - Liquid Caustic Soda is not manufactured with and does not contain Partially Hydrogenated Oils (PHOs).

Product Stewardship

Westlake is committed to managing Liquid Caustic Soda so that it can be safely used by its employees and customers. Westlake's relationships with its customers encourage communication about safety and environmental stewardship.

Additional Information

For more information regarding Westlake's Liquid Caustic Soda, contact us by calling (713) 960-9111.

References

- Westlake website: www.westlake.com

Notice

Prior to its use, the user is responsible for determining the suitability of the product or products covered by this Product Stewardship Summary and for complying with all federal, state, and local laws and regulations in connection with its use. Neither Westlake nor any of its affiliates shall be responsible for any damages of any kind whatsoever resulting from the use of or reliance on this Product Stewardship Summary or product or products to which it refers.

This Product Stewardship Summary is intended only to provide a general summary of the potential hazards associated with the product or products described herein. It is not intended to provide detailed information about

potential health effects and safe use and handling information and, although Westlake believes this information is correct, Westlake makes no warranties as to its completeness or accuracy. Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the Westlake product(s) mentioned in this document. Before working with any of these products, users must read and become familiar with the available information on product hazards, proper use, and handling. Information is available in several forms, such as safety data sheets (SDS) and product labels. A copy of Westlake's SDS for Liquid Caustic Soda can be obtained by going to the company's website www.westlake.com.

This information is subject to change without notice.

Issue Date: July 2018