

## SODIUM HYDROXIDE

### What is sodium hydroxide?

Sodium hydroxide is also called caustic soda, lye, sodium hydroxide solid, and sodium hydrate. It has no odor and can be a solid or a liquid. As a solid, it is a white substance that can be in the form of lumps, sticks, pellets, and chips. It quickly absorbs carbon dioxide and water from the air. When near moisture, sodium hydroxide can burn or eat away at animal and vegetable tissue and some metal. Sodium hydroxide mixes easily with water, alcohol, and glycerol. It generates heat while dissolving.

### Where can sodium hydroxide be found and how is it used?

Sodium hydroxide is one of the most common chemicals in industry. It is used in a wide range of processes to make many products including plastics, soaps, rayon, and textiles. It revitalizes acids in petroleum refining.

In food production, sodium hydroxide peels fruits and vegetables. Some industries use it for etching. Other uses include disinfecting and dehorning cattle. In households, it can be found in drain and oven cleaners.

### How can people be exposed to sodium hydroxide?

You could be exposed to sodium hydroxide through:

- **Breathing** vapors when using products containing sodium hydroxide. Drain and oven cleaners may contain small amounts of sodium hydroxide. You may also breathe vapors if you work where sodium hydroxide is made or used.
- **Drinking** it by accident.
- **Touching** sodium hydroxide when used without the right protection.
- **Eye contact** by getting sodium hydroxide vapor or liquid in the eyes during use.

### How does sodium hydroxide work and how can it affect my health?

Sodium hydroxide can burn or eat away at any part of the body that it contacts. Breathing sodium hydroxide dust or mist causes mild or serious effects, depending on the amount of exposure. Effects may include sneezing, sore throat, or runny nose. Severe inflammation of the lungs can occur.

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Swallowing sodium hydroxide may cause severe burns in the mouth, throat, and stomach. Severe scarring of tissue and death may result. Symptoms of eating or drinking sodium hydroxide include bleeding, throwing up, or diarrhea. A drop in blood pressure may also occur. Damage may appear days after exposure.

Contact with skin can cause irritation or severe burns. Greater exposure can cause scarring.

Vapor and direct contact can cause eye irritation. Greater exposure can cause burns that could result in permanent damage to vision, including blindness. Long-term contact with lower strength solutions or dust can have a harmful effect on tissue.

If you already have skin, eye, or breathing problems, you may be more likely to experience harmful effects from exposure to sodium hydroxide.

### **How is sodium hydroxide poisoning treated?**

If you eat or drink sodium hydroxide, a doctor will perform an endoscopy. This is a test that allows the doctor to see inside parts of the body. Steroids may be used to treat severe damage to the esophagus, the tube that carries food to the stomach. Other treatments will depend on the damage found.

### **What should I do if exposed to sodium hydroxide?**

- **If you breathe sodium hydroxide**, get to an area with fresh air. Artificial respiration may be needed if breathing has stopped. If it is difficult to breathe, oxygen should be given. Get medical help.
- **If you eat or drink sodium hydroxide**, DO NOT THROW UP! Drink large amounts of water or milk. Get medical help right away.
- **If you touch sodium hydroxide**, remove clothes and shoes. Wash with water for at least 15 minutes. Get medical help right away. Wash clothing before wearing.
- **If you get the liquid or vapor in your eyes**, flush eyes with plenty of water for at least 15 minutes. Lift the lower and upper eyelids from time to time. Get medical help right away.

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## **What factors limit use or exposure to sodium hydroxide?**

In the workplace, a source of fresh air will reduce exposure. Wear a respirator. Wear protective clothing, including boots, gloves, lab coat, apron, or coveralls. Use chemical safety goggles and/or a full-face shield if splashing is possible. An eye wash fountain and quick-drench system should be in the work area.

At home, use less harmful cleaners. Use cleaning paste instead of a spray. This can prevent exposure from sodium hydroxide in the air. If using a cleaner that contains sodium hydroxide, wear long, rubber gloves and goggles or safety glasses. Do not breathe spray mist. Use in an area with fresh air.

## **Is there a medical test to show whether I've been exposed to sodium hydroxide?**

A lung function test may show the effects of exposure. If you work with sodium hydroxide, a lung function test may be done before you start work, then again at regular times. An x-ray can also check for harmful effects.

## **Technical information for sodium hydroxide**

CAS Number: 1310-73-2

Chemical Formula: NaOH

Carcinogenicity (EPA): The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the EPA have not classified sodium hydroxide for carcinogenicity in humans.

MCL (Drinking Water): There is currently no MCL available.

OSHA Standards: OSHA permissible exposure limit (PEL): 2 mg/m<sup>3</sup> Ceiling

NIOSH Standards: The recommended airborne exposure limit is 2 mg/m<sup>3</sup>, which should not be exceeded at any time. The NIOSH IDLH (immediately dangerous to life or health) value is 10 mg/m<sup>3</sup>.

## **Resources**

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. *Tox FAQ for Sodium Hydroxide*. Atlanta, GA: U.S. Department of Health and Human Services. <https://www.atsdr.cdc.gov/toxfags/tfacts178.pdf>

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