

Sodium Hydroxide Release Fact Sheet

What is Sodium Hydroxide?

Sodium hydroxide (NaOH) is also called caustic soda, lye, soda lye and sodium hydrate. It is available commercially in various solid forms, e.g., pellets, sticks, or chips, and in water solutions of various concentrations. The most common liquid concentration is 50%.

Sodium hydroxide plays an important role in the manufacture of thousands of products we depend on every day such as soaps and detergents, rayon and other textile products, cellophane, paper and cleansers. Common household products usually containing sodium hydroxide include drain cleaners and oven cleaners.

Warning Signs of a Sodium Hydroxide Release

Sodium hydroxide is odorless and is readily soluble in water. As a solid form, the pellets, sticks, chips or beads are white. In a liquid form, sodium hydroxide is a clear to a cloudy white solution. The solution looks thicker than water since it is viscous. Therefore, areas in contact with the product will be slippery.

Physical Properties of Sodium Hydroxide

50% Sodium hydroxide solution is a colorless to slightly cloudy liquid at ambient temperatures with a freezing point of approximately 55.4°F (13°C). It has a density approximately 50% greater than water. It is highly viscous with a viscosity of nearly 100 times greater than water at 68°F (20°C). Viscosity is a measure of a liquid's thickness. Fluids that are highly viscous, like honey or molasses, resist flow.

The freezing point of more dilute solutions is lower than that of 50%, with the minimum freezing point being -16.6°F (-27°C) for 18% sodium hydroxide. As 18% sodium hydroxide is diluted, its freezing point increases, approaching that of water for very dilute solutions.

73% Sodium hydroxide has a freezing point of approximately 145.4°F (63°C).

Anhydrous (100%) sodium hydroxide is a white translucent solid with a melting point of approximately 590°F (310°C).

When mixed with water, solid and liquid sodium hydroxide may generate enough heat to ignite combustible materials. Contact with organic materials and concentrated acids may cause violent reactions. Contact with nitromethane and other similar nitro compounds cause formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable and explosive hydrogen gas.

Effects of Exposure to Sodium Hydroxide

Sodium hydroxide is a strong irritant and has marked corrosive action on all body tissues regardless of the route of exposure (eye contact, skin contact, inhalation, and ingestion) or physical form (liquid or solid). Contact with the eyes may cause irritation or blindness. Contact with the skin may cause irritation or third-degree burns, which may have a delayed effect. The severity of injury increases with concentration, duration of exposure, and the speed of penetration into the tissue.

For personal protective equipment and first aid treatments for sodium hydroxide exposure, refer to a sodium hydroxide Safety Data Sheet and medical personnel. Responders should take the necessary precautions to protect themselves from any exposure to sodium hydroxide while administering first aid and should move the victim from any contaminated area as quickly as possible.

Emergency Response

Evacuate area. Clear non-emergency personnel from area. Those affected should listen to local first response officials and news outlets for guidance during an emergency.

More Information

Local emergency phone number for immediate medical attention in the U.S.: 911

Regional Poison Control Center phone number in the U.S.: 1-800-222-1222

Refer to a Safety Data Sheet (SDS)

The information provided in this Fact Sheet is not meant to be complete. For more information on first aid, refer to your Safety Data Sheet (SDS) for sodium hydroxide. Visit <https://bookstore.chlorineinstitute.org/> to download free copies of pertinent pamphlets.