

# PRODUCT PROFILE

## SODIUM HYPOCHLORITE



### SODIUM HYPOCHLORITE CHEMICAL PROPERTIES

Sodium hypochlorite is widely used in various applications. It is used on a large scale for water and surface purification, bleaching, odor removal, and water disinfection. Sodium hypochlorite is light yellow with a strong bleach odor. Sodium hypochlorite is a chemical that is produced through the mixing of caustic soda, liquid chlorine and water. Hill Brothers Chemical Co. typically produces concentration of 12.5% by weight of sodium hypochlorite.

### SPECIFICATIONS

Sodium Hypochlorite, wt. % .....	12.5 %
Chemical Formula.....	NaOCl
Color .....	Light Green to Light Yellow
Specific Gravity.....	1.196
Density (lbs./gal.).....	9.96
Alkalinity.....	0.9 – 1.1
Available Chlorine, GPL.....	142
Available Chlorine, wt. %.....	11.9

Certified by NSF Standard 60

### STABILITY OF SODIUM HYPOCHLORITE

Sodium hypochlorite is an unstable compound. The stability of sodium hypochlorite is highly affected by the purity of sodium hypochlorite. A slight excess of sodium hydroxide is needed for stability. There are many factors affecting the stability. Lower concentrations are more stable than higher strength solutions. Decomposition of bleach cannot be avoided, but the rate of decomposition can be influenced by contact with catalyzing metallic impurities and organic impurities, exposure to light and the pH of solution. The temperature at which the bleach is manufactured, shipped, and stored influences the stability because the decomposition rate accelerates as temperature increases.

The decomposition of sodium hypochlorite leads to the formation of chlorates and chloride ions. A slower second pathway of decomposition leads to oxygen and chloride formation. Both forms of decomposition leave deposits of white powder containing sodium chlorate. Storage containers should be regularly cleaned or flushed to minimize build-up of contaminants that can lead to a higher decomposition rate.

### HANDLING

The handling of sodium hypochlorite requires a clear understating and knowledge of safety handling and storage precautions. Avoid all direct contact with sodium hypochlorite. It is irritating to the eyes, skin, and mucous membranes. Use of proper protective equipment is recommended (goggles and impervious gloves).



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Proper selection of storage tanks, equipment, and site location are extremely important to safely store and handle bleach. Relatively few materials of construction can withstand the highly reactive nature of sodium hypochlorite. Using incompatible material with bleach can damage equipment and contaminate product. The only metals that should be used with bleach are titanium or tantalum. Plastics such as polyethylene, PVC, Teflon and other compatible plastics are the most common used materials.

## COMPATIBLE MATERIALS

- PVDF (Fluorinated polyvinylidene)
- PTFE (Polytetrafluoroethylene)
- Ethylene propylene rubber
- Chlorobutyl rubber 100%
- Polypropylene
- PVC
- CPVC
- Tantalum
- Titanium

## SAFETY

Sodium hypochlorite will react with acids, ammonium hydroxide (aqua ammonia), or cleaners containing ammonia compounds to generate hazardous gases. Bleach may react violently with some organic compounds. A vigorous reaction with a pressure build-up is possible if the product decomposes in the containers. Care must be taken when opening containers to make sure excess pressure is not present. Care should be practiced to prevent mixing of any non-compatible compounds.

## SAFETY PRECAUTIONS

- Proper personal protective equipment should always be worn
- Keep containers closed when not in use
- Avoid breathing fumes
- Avoid contact with eyes, skin, and clothing
- Wash thoroughly after handling
- Do not allow contact with organic materials
- Do not mix with acids, ammonia or reducing agents

Information obtained from:

Handbook of Chlorination (1972), New York: Van Nostrand Reinhold Company

## WHY HILL BROTHERS?

- Exceptional Customer Service
- Dependable, Accurate Quality Control
- Superior Product Specifications
- Locations throughout the Western United States

Rev. 6/10

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