

Material Safety Data Sheet

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PRODUCT: Sodium Hypochlorite Solution



4. First Aid Measures

INHALATION: Remove victim to fresh air. Give artificial respiration if not breathing. Get medical attention.

EYE CONTACT: Wash eyes with plenty of water for at least 15 minutes while holding eyelids open. Consult an eye specialist immediately.

SKIN CONTACT: Flush skin with plenty of water while removing contaminated clothing. Get medical attention for persistent irritation. Clean clothing before reuse.

INGESTION: If swallowed drink large quantities of water. Do NOT induce vomiting. Call a poison control center or doctor immediately for treatment advice. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water.

5. Fire Fighting Measures

FLASH POINT (METHOD USED): Non - flammable

FLAMMABLE LIMITS (% BY VOLUME): n.a.

EXTINGUISHING MEDIA: Use water spray, fog, foam, dry chemicals, or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should wear protective equipment including self contained breathing apparatus. Avoid fumes. Dilute spill with copious amounts of water, ventilate. Be prepared to use respirator.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Possible vigorous reaction upon contamination with organics or oxidizing agents. Bleach decomposes when heated, decomposition products may cause containers to rupture or explode. Many reactions can cause fire and explosion. This material will react with some metals which may cause liberation of oxygen. Toxic fumes can be liberated by contact with acid or heat. Vigorous reactions can occur with oxidizable materials and organics. Keep material cool using a water spray from a safe distance. Keep all unnecessary people away. Stay up wind and stay out of low-lying areas.

6. Accidental Release Measures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Personnel with proper protective equipment should contain spill. Flush area with large amounts of water. Use reducing agents such as bisulfites or ferrous salt solutions to neutralize.

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7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store this product in a cool dry area; away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not reuse container. Do not contaminate food or feed by storage, disposal or cleaning of equipment. Most metals and metal alloys are NOT suitable for use in contact with sodium hypochlorite solutions including aluminum, brass, bronze, copper, cast iron, galvanized steel, mild steel, nickel, or stainless steel, since these metals act as a catalyst which will cause rapid decomposition of the sodium hypochlorite solution through the release of oxygen.

Sodium hypochlorite solutions are basically unstable, and on exposure to heat and/or light, will slowly decompose, becoming less concentrated with time. Sodium hypochlorite solutions should never be allowed to contact or mix with acids or other low pH compounds, due to the release of chlorine gas. Do not allow sodium hypochlorite to mix with ammonia, since chloramines may be formed.

Decomposition of sodium hypochlorite takes place within a few seconds with following salts: ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, and ammonium phosphate.

Hypochlorites react with urea to form nitrogen trichloride, which explodes spontaneously in air.

Solutions of sodium hypochlorite are corrosive to the skin, eyes, and mucous membranes. Proper safety equipment should be used when working with or in close proximity of sodium hypochlorite.

OTHER PRECAUTIONS: Use with adequate ventilation. Wash thoroughly after handling. Do not get in eyes, on skin or clothing. Do NOT breathe fumes or mist. Mixing this product with chemicals (e.g. common household cleaners, ammonia, acids, detergents, etc.) or organic matter will release chlorine gas, which is irritating to eyes, lungs, and mucous membranes.

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. common household cleaners, ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs and mucous membranes.

8. Exposure Controls/Personal Protection

CAS NUMBER	CHEMICAL NAME(S)	*WT %	THRESHOLD LIMIT VALUES (UNITS)			
			OSHA:		ACGIH:	
			PEL	STEL	TLV	STEL
7681-52-9	Sodium hypochlorite**	10 - 15.6	— NONE ESTABLISHED —			
1310-73-2	Sodium hydroxide	0.3 - 1.8	2 mg/m ³ Ceiling	---	2 mg/m ³ Ceiling	---
7647-14-5	Sodium Chloride	9 - 14.9	— NONE ESTABLISHED —			
497-19-8	Sodium carbonate	≤ 0.5	— NONE ESTABLISHED —			
7732-18-5	Water	Balance	— NONE ESTABLISHED —			

** %(w/w) as Cl₂ 9.5 to 14.9% TLV/TWA (ACGIH) 0.5ppm Cl₂; TLV/STEL (ACGIH) 1ppm Cl₂ & PEL (OSHA) 1ppm Cl₂

RESPIRATORY PROTECTION: When fumes present, use NIOSH approved respirator with acid type canister.

VENTILATION: Local exhaust preferable as required to control fumes.

PROTECTIVE GLOVES: Rubber or plastic.

EYE PROTECTION: Chemical goggles.

OTHER PROTECTIVE EQUIPMENT: Clothing to protect skin. Safety shower and eye wash fountain.

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9. Physical and Chemical Properties

BOILING POINT °F (°C): 110 °C for 15% NaOCl

VAPOR DENSITY (AIR =1): n.a.

VAPOR PRESSURE (mmHg): Vapor pressure of water plus decomposition products.

SOLUBILITY IN WATER: Complete

SPECIFIC GRAVITY (H₂O=1): 1.08 - 1.27

EVAPORATION RATE: n.a.

PERCENT VOLATILE BY VOLUME (%): Water vapor plus decomposition products.

APPEARANCE AND ODOR: Light, yellow-green liquid

10. Stability and Reactivity

STABILITY: Unstable (Contingent upon temperature, contamination (metals), and pH.)

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Heat, light exposure, decrease in pH, and contamination with heavy metals, such as nickel, cobalt, copper and iron.

INCOMPATIBILITY (MATERIALS TO AVOID): Heavy metals, reducing agents, organics, ether, ammonia, ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, ammonium phosphate, urea and acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Hypochlorous acid, chlorine, hydrochloric acid, sodium chloride, sodium chlorate, and oxygen. Decomposition of sodium hypochlorite takes place within a few seconds with following salts: ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, and ammonium phosphate. Hypochlorites react with urea to form nitrogen trichloride, which explodes spontaneously in air.

11. Toxicological Information

TOXICITY DATA:

Oral LD50: 8,910 mg/kg. (Rats)	Acute dermal toxicity: III; LD50, > 3,000 mg/kg
Dermal LD 50: > 10,000mg/kg. (Rabbits)	Primary eye irritation: I; Corrosive
Inhalation 0.25-hour LC 50: >10.5 mg/l (Rats)	Primary skin irritation: I; Corrosive
Acute oral toxicity: IV; LD50, 192 mg/kg	

SUMMARY: The concentrated solution is corrosive to skin, and a 5% solution is a severe eye irritant. Solutions containing more than 5% available chlorine are classified by DOT corrosive. Toxicity described in animals from single exposures by ingestion includes muscular weakness, and hyperactivity. Repeated ingestion exposure in animals caused an increase in the relative weight of adrenal glands in one study, but no pathological change were observed in two other studies. Long-term administration of compound in drinking water of rats caused depression of the immune system. No adverse changes were observed in an eight-week dermal study of a 1% solution in guinea pigs. Tests in animals demonstrate no carcinogenic activity by either the oral or dermal routes. Tests in bacterial and mammalian cell cultures demonstrate mutagenic activity.

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16. Other Information

HMIS HAZARD RATING: Health 3

Flammability 0

Reactivity 2

VOC CONTENT (lbs/gal): n.a.

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PREPARED BY:

A handwritten signature in black ink, appearing to read "M. D. Miller", written over a horizontal line.

APPROVED BY:

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