



Material Safety Data Sheet

Revised 8/19/2011

Section I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

K-O-K Products, Inc.
700 S. 3B's and K Rd.
Galena, Ohio 43021
1-740-548-0526

Emergency Response Number
1-800-255-3924 (24 hours)

SUBSTANCE: **SODIUM HYPOCHLORITE**

TRADE NAME: **Bleach 12.5 % by weight.**

CHEMICAL NAME/SYMBOL: Sodium Hypochlorite Solution, Bleach Solution, Liquid Chlorine Solution, Hypo-solution and Liquid Bleach.

CAS NUMBER: 7681-52-9

CHEMICAL FAMILY: Alkali

FORMULA: NaOCl

DOT PROPER SHIPPING NAME: Hypochlorite Solution

DOT HAZARD CLASS: 8 (Corrosive) PG III; PG II (For solutions greater than 16% available chlorine)

DOT IDENTIFICATION NO: UN1791

RQ: 100 pounds

DOT EMERGENCY GUIDE NO: 154

Section II COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT(S):

Sodium Hypochlorite (NaOCl)	12.0 - 13.0 % wt.
Sodium Hydroxide (NaOH)	0.20 - 1.0 % wt.
Water (H ₂ O)	87.8 - 86.0 % wt.

SECTION III HAZARDS IDENTIFICATION

NFPA CLASSIFICATION (SCALE 0-4): Health=2 Fire=0 Reactivity=1

EC CLASSIFICATION (ASSIGNED): C (Corrosive)

EMERGENCY OVERVIEW

COLOR: Yellow PHYSICAL FORM: Liquid ODOR: Chlorine Odor

MAJOR HEALTH HAZARDS: Respiratory Tract Burns, Skin Burns, Mucous Membrane Burns, and Eye Irritation

HAZARDOUS MIXTURES WITH OTHER LIQUIDS, SOLIDS, OR GASES: Reacts violently with acids liberating chlorine gas. Also reacts with organic substance. When heated, gives off oxygen that may increase fire hazard.

POTENTIAL HEALTH EFFECTS

INHALATION:

- **SHORT TERM EXPOSURE:** Irritation to respiratory tract. May have same as effects reported in other routes of exposure, burns, blisters, nausea, difficulty breathing, and lung congestion.
- **LONG TERM EXPOSURE:** Same as effects reported in short term exposure.

SKIN CONTACT:

- **SHORT TERM EXPOSURE:** Irritant, reddening of the skin. May have burns, blisters, and itching
- **LONG TERM EXPOSURE:** Same as effects reported in short term exposure.

EYE CONTACT:

- **SHORT TERM EXPOSURE:** Irritation (possible severe), possible eye damage
- **LONG TERM EXPOSURE:** Same as effects reported in short term exposure.

INGESTION:

- **SHORT TERM EXPOSURE:** Burns, vomiting stomach pain, disorientation, bluish skin color, convulsions, coma
- **LONG TERM EXPOSURE:** Same as effects reported in short term exposure.

CARCINOGEN STATUS: OSHA: N NTP: N IARC: N

SECTION IV FIRST AID MEASURES

INHALATION: Remove from exposure and get fresh air. Use bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately if artificial respiration required.

SKIN CONTACT: Remove contaminated clothing, jewelry, and shoes immediately. Flush affected area with large amounts of water, preferable a safety shower. Use soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). For burns, cover affected area securely with sterile, dry, loose fitting dressing. If skin is burned, get medical attention immediately.

EYE CONTACT: Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15 minutes). Continue irrigating with a normal saline solution until ready to transport to physician. Cover with sterile bandages. Get medical attention immediately.

INGESTION: Rinse mouth with water. Drink large quantities of milk (water if no milk is available). Milk of magnesia may be helpful. **DO NOT USE ACIDIC ANTIDOTES SUCH AS SODIUM BICARBONATE.** When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, do not induce vomiting and turn their head to the side. Never make an unconscious person vomit or drink fluids. Get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, avoid gastric lavage, emesis, sodium bicarbonate and acidic solutions. Consider the use of antacids.

SECTION V FIRE FIGHTING MEASURES

FLASH POINT: Non-flammable **FLAMMABLE LIMITS:** Non-flammable

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer, This material will react with some metals and cause liberation of oxygen. May ignite or explode on contact with combustible materials. Toxic fumes can be liberated by contact with acid or heat.

EXTINGUISHING MEDIA: Regular dry chemical, carbon dioxide, water, or foam suitable for surrounding fire. For large fires, use regular foam or flood with fine water spray.

FIRE FIGHTING: Wear self-contained breathing apparatus and full protective clothing. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material. For large fires, flood with fine water spray. Reduce vapors with water spray. Apply water from a protected location or from a same distance. Avoid body contact or inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION VI ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Do not touch spilled material. Stop leak if possible without personal risk. For small spills, collect spilled material in appropriate container for disposal and consider absorbing with sand or other non-combustible material (e.g., do not use sawdust or other combustible material). Be advised, however, that the use of absorbing material is creating hazardous waste and this absorbing material must now be disposed of properly. Collect spilled material in appropriate container for disposal. For small

dry spills, move containers away from spill to a safe area. For large spills, dike for later disposal. If possible, do not allow material to enter sewers, streams, ponds or storm conduits, as concentrated solutions will seriously injure aquatic life. Keep unnecessary people away, isolate hazard area and deny entry. Contain in as small an area as possible, such as a holding area for dilution and neutralization. Contain spill in plastic drums when available. Dispose of in accordance with Federal, State, and local regulations. Personnel engaged in cleanup operations must be equipped with NIOSH approved respirator protection, rubber boots, gloves, and clothing to avoid body contact. Reportable Quantity (RQ): 100 pounds. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 394). If release occurs in the U.S. and reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

ADVANCE PLANNING: Plan in advance for an occupational release and have necessary equipment and neutralization agents on-site. Contact Odyssey Manufacturing for assistance.

SECTION VII HANDLING AND STORAGE

Store in vented, closed containers that provide protection from direct sunlight. Keep separated from incompatible substances and do not store near acids, heat, or oxidizable materials or organics. When handling, do not mix with other cleaning agents that may liberate chlorine gas vapors (e.g., acidic agents)

Store and handle in accordance with all current regulations and standards including NFPA 430 Code for the Storage of Liquid and Oxidizing materials.

SECTION VIII EXPOSURE CONTROLS AND PERSONNEL PROTECTION

EXPOSURE LIMITS: 2 mg/m³ AIHA recommended STEL 15 minutes for Sodium Hypochlorite
VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Splash goggles are preferred to a face shield. Another option is to wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: it is recommended to wear appropriate chemical resistant clothing to avoid body contact such as a rubber apron or rain suit. Boots are preferred footwear.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- Any supplied-air respirator with a full facepiece and operated in a pressure-demand or other positive pressure mode in combination with a separate escape supply (use for Unknown Concentrations of those that may be Immediately Dangerous to Life or Health)
- Any self-contained breathing apparatus with a full facepiece (use for High Concentrations or those which are Immediately Dangerous to life or Health)

SECTION IX PHYSICAL PROPERTIES

PHYSICAL STATE and APPEARANCE: Liquid with pale yellow Color **ODOR:** Chlorine odor like household bleach. **MOLECULAR WEIGHT:** 74.44

MOLECULAR FORMULA: Na-O-Cl **BOILING POINT:** Degrades / Decomposes at 230 ° F
FREEZING POINT: -10° F **SPECIFIC GRAVITY:** 1.18 -1.22 **PH:** Approximately 11.5-13.0
VAPOR PRESSURE (mm HG): Vapor Pressure of water + decomposition product vapor pressure

VAPOR DENSITY: Not Available SOLUBILITY IN WATER: Complete
VOLATILITY: Not Available EVAPORATION RATE: >1
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not Available

SECTION X STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperature and pressure.
CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.
INCOMPATIBLES: Acids, metals, amines, combustible materials, reducing agents. Specific reactions with sodium Hypochlorite include the following:
ACIDS: Violent reaction. ALUMINUM: Corrosive action. AMINES: Form explosive chloramines.
AMMONIA: Form explosive chloramines. AMMONIUM SALTS: May form explosive product.
BENZYL CYANIDE (ACIDIFIED): explosive reaction. ETHYLENEIMINE: Forms explosive 1-chloroethyleneimine. FORMIC ACID: Explosive mixture.
METHANOL: May form explosive compound.
NITROGEN COMPOUNDS: Forms explosive N-chloro compounds.
ORGANIC AND COMBUSTIBLE MATERIALS: Fire and explosion hazard.
OXALIC ACID: Intense reaction. REDUCING AGENTS: Fire and explosion hazard
ZINC: Corrosive
HAZARDOUS DECOMPOSITION: Thermal decomposition products-Chlorine and Hydrochloric Acid Vapors. Decomposition Products - Hypochlorous Acid Vapors
POLYMERIZATION: Will not polymerize.

SECTION XI SODIUM HYPOCHLORITE TOXICOLOGICAL INFORMATION

IRRITATION DATA: 10 mg eyes-rabbit moderate
TOXICITY DATA: 1 gm/dg oral-woman: TDLo; 45 mg/kg intravenous-man TDLo; 5800 mg/kg oral-mouse LD50; 140 mg/kg/9 week(s) continuous oral-rat TDLo
CARCINOGEN STATUS: According to the IARC, animal inadequate evidence, human no adequate data, Group 3 (Hypochlorite salts)
LOCAL EFFECTS: Corrosive: inhalation, skin contact, eye, ingestion hazards
ACUTE TOXICITY LEVEL: Slightly Toxic if ingested
MUTAGENIC DATA: Mutation in micro organisms-Salmonella typhimurium 1 mg/plate (-S9); DNA repair-Escherichiacoli 20 µg/disc; DNA damage-Esoherichiacoli 420 µmol/L: phage inhibition capacity-Esoherichiacoli 103 µg/well; micronucleus test-non-mammalian species multiple 200 ppb; cytogenetic analysis-non-mammalian species multiple 120 µg/L; cytogenetic analysis-hamster lung 100 mg/l
HEALTH EFFECTS:

INHALATION

ACUTE EXPOSURE: May cause severe bronchial irritation, sore throat with possible blistering, coughing, stomatitis, nausea labored breathing, shortness of breath and pulmonary epedema. 10-20 mg/m³ causes burning of the nose and throat; 40-60 mg/m³ may be fatal. If sufficient amounts are absorbed, may cause effects as detailed in acute ingestion.

CHRONIC EXPOSURE: No data available.

SKIN CONTACT

ACUTE EXPOSURE: Extent of damage depends on concentration, pH, volume of solution & time of contact. May cause redness, pain, blistering, itchy eczema & chemical burns. Sensitization reactions possible in previously exposed persons.

CHRONIC EXPOSURE: Effects depend on concentrations and duration of exposure. Repeated or prolonged contact with corrosive substances may result in dermatitis or effects similar to acute exposure. Allergic dermatitis has also been reported.

EYE CONTACT

ACUTE EXPOSURE: May cause redness, pain, & blurred vision. Solutions of 5% splashed in human eyes have caused a burning sensation and later only slight superficial disturbance of the corneal epithelium, which cleared completely in the next day or two without special treatment. However, one animal study

reports a 5% solution causing only moderate irritation with clearing within 7 days. A higher concentration of 15% tested on rabbit eyes caused immediate severe pain, hemorrhages, rapid onset of ground-glass appearance of the corneal epithelium, moderate bluish edema of the whole cornea, chemosis and discharge for several days. Such eyes have sometimes healed in 2-3 weeks with slight or no residual corneal damage but they had neovascularization of the conjunctiva and distortion of the nictitating membrane by scarring. CHRONIC EXPOSURE: Depending on concentration and time of exposure, symptoms may be as those of acute exposure.

INGESTION

ACUTE EXPOSURE: May cause irritation and erosion of the mucous membranes, vomiting (possibly bloody) and abdominal pain and spasms. A drop in blood pressure, shallow respiration, edema (possibly severe) of pharynx, larynx, and glottis, confusion, convulsions, delirium and coma may occur. Cyanosis and circulatory collapse are possible. Esophageal or gastric perforation and strictures are rare. Death may occur, usually due to complications of severe local injury such as toxemia, shock, perforations, hemorrhage, infection and obstruction. Massive ingestions may produce fatal hyperchloremic metabolic acidosis or aspiration pneumonitis.

CHRONIC EXPOSURE: Sensitization reactions are reported in individuals who are exposed in small amounts through their water supply. High doses have caused sperm abnormality in mice.

SECTION XII ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 94.0 µg/L 96 hour(s) LC50 (Mortality) Cutthroat trout (*Oncorhynchus clarki*)

INVERTEBRATE TOXICITY: 31.6 µg/L 7 hour(s) LC50 (Species Diversity) protozoan phylum (Protozoa)

ALGAL TOXICITY: 90 µg/L 96 hour(s) LC50 (Mortality) Algae, phytoplankton, algal mat (Algae)

PHYTOTOXICITY: 230 µg/L 35 hour(s) (Biomass) Curled pondweed (*Potamogeton crispus*)

OTHER TOXICITY: 2.1 µg/L 28 day(s) (Chlorophyll) Aquatic community (Aquatic community)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

SECTION XIII DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.

SECTION XIV TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101 SHIPPING NAME-UN NUMBER: Sodium Hypochlorite - UN1791

U.S. DOT 49 CFR 172.101 HAZARD CLASS OR DIVISION: 8

U.S. DOT 49 CFR 172.101 PACKING GROUP: III (less than 16% available chlorine)/II (16% or more available chlorine)

U.S. DOT 49 CFR 172.101 AND SUBPART E LABELING REQUIREMENTS: Corrosive

U.S. DOT 49 CFR 172.101 PACKAGING AUTHORIZATIONS:

EXCEPTIONS: 49 CFR 173.154

NON-BULK PACKAGING: 49 CFR 173.203 (less than 16% available chlorine)/ 49 CFR 173.202 (16% or more available chlorine)

BULK PACKAGING: 49 CFR 173.241 (less than 16% available chlorine)/ 49 CFR 173.242 (16% or more available chlorine)

U.S. DOT 49 CFR 172.101 QUANTITY LIMITATIONS:

PASSANGER AIRCRAFT OR RAILCAR: 5 LITERS (less than 16% available chlorine) / 1 LITERS (16% or more available chlorine)

Cargo aircraft only: 60 liters (less than 16% available chlorine) / 30 liters (16% or more available chlorine)

SECTION XV REGULATORY INFORMATION

U.S. REGULATIONS

TSCA INVENTORY STATUS: Y TSCA 12(b) EXPORT NOTIFICATION: Not listed.
CERCLA SECTION 103 (40CFR302.4): Y SODIUM HYPOCHLORITE: 100 LBS RQ
SARA SECTION 302 (40CFR355.30): N SARA SECTION 304 (40CFR355.40): N
SARA SECTION 313 (40CFR372.65): N
SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
ACUTE: Y CHRONIC: N FIRE: N REACTIVE: N SUDDEN RELEASE: N
OSHA PROCESS SAFETY (29CFR1910.19): N
STATE REGULATIONS: California Proposition 65: N
EUROPEAN REGULATIONS: EC NUMBER (BINECS): 231-668-3

EC RISK AND SAFETY PHRASES:

R 31 Contact with acids liberates toxic gas.
R 34 Causes burns
S 1/2 Keep locked-up and out of reach of children.
S 28b After contact with skin, wash immediately with plenty of soap and water.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S 50 Do not mix with incompatible materials.

CONCENTRATION LIMITS:

C>10%	C	R 31-34
5%≤C≤10%	Xi	R 31-36/38

GERMAN REGULATIONS: WATER HAZARD CLASS (WGK): 2 (Official German Classification)

SECTION XVI OTHER INFORMATION

For additional information, contact our Quality Assurance / Technical Service Department.

Information contained in this MSDS refers only to the specific material designated and does not relate to any process or use involving other materials. This information is based on data believed to be reliable, and the Product is intended to be used in a manner that is customary and reasonably foreseeable. Since actual use and handling are beyond our control, no warranty, expressed or implied, is made and no liability is assumed by K-O-K Products, Inc. in connection with the use of this information.

Supersedes: 3/5/2009
Approved: HK, TJN