



MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME(S) **KOCHKLEEN® 410**
CAS NUMBER 7681-52-9
MSDS NUMBER 5709
PRODUCT CODE ND
PRODUCT USE CLEANING SOLUTION
SYNONYM(S) SODIUM HYPOCHLORITE SOLUTION
CHLORINE BLEACH SOLUTION



MANUFACTURER / SUPPLIER Koch Membrane Systems, Inc.
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TELEPHONE NUMBERS - GENERAL ASSISTANCE

(8-5, M-F EST) Product Assistance 978-657-4250

For technical assistance regarding this product, please contact your local Koch Membrane Systems representative.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
SODIUM HYPOCHLORITE	7681-52-9	10 - 20 %	Chlorine Gas: 1 ppm 8-Hour TWA (OSHA) 0.5 ppm 8-Hour TWA (ACGIH)
SODIUM HYDROXIDE	1310-73-2	< 1.7 %	2 mg/m ³ 8-Hour TWA (OSHA)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

WHMIS Classification: D2B, E.

Local authorities should be consulted for exposure limits in effect in your region.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!

HEALTH HAZARDS

MAY BE CORROSIVE TO THE SKIN, EYES AND RESPIRATORY TRACT

MAY CAUSE BLINDNESS

MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

ASPIRATION HAZARD IF SWALLOWED-CAN ENTER LUNGS AND CAUSE DAMAGE

**SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

FLAMMABILITY HAZARDS

NON-COMBUSTIBLE

REACTIVITY HAZARDS

REACTS WITH VARIOUS ORGANICS TO FORM EXPLOSIVES

**SEE "STABILITY & REACTIVITY" (SECTION 10) FOR MORE INFORMATION

POTENTIAL HEALTH EFFECTS, SKIN

CORROSIVE. Contact may cause reddening, itching, inflammation, burns, blistering and possibly severe tissue damage.

Exposure to high levels of vapors may cause temporary hair loss.

POTENTIAL HEALTH EFFECTS, EYE

CORROSIVE. Exposure may cause severe burns, destruction of eye tissue and possible permanent injury or blindness.

POTENTIAL HEALTH EFFECTS, INHALATION

EXTREMELY IRRITATING AND CORROSIVE. Symptoms may include throat burns, constriction of the windpipe (bronchospasms), severe pulmonary edema and death, depending on the concentration and duration of exposure. Symptoms may include sore throat, coughing, labored breathing, sneezing and burning sensation, depending on the concentration and duration of exposure.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

POTENTIAL HEALTH EFFECTS, INGESTION

CORROSIVE. May cause painful irritation and burning of the mouth and throat, painful swallowing, labored breathing, burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection. Symptoms may include salivation, pain, nausea, vomiting and diarrhea. Other effects may include rapid breathing and heartbeat, low blood pressure, cyanosis, pulmonary edema, convulsions, coma and death.

A small amount ingested can be fatal.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

4 FIRST AID MEASURES

SKIN

Immediately flush skin with plenty of water, for at least 15 minutes, while removing contaminated clothing and shoes. GET IMMEDIATE MEDICAL ATTENTION.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Never give anything by mouth to an unconscious person. Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis.

Have victim rinse mouth thoroughly with water, then drink 8 to 10 oz. of water to dilute material in stomach. If milk is available, it may be administered AFTER the water has been given. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water. Quickly transport to emergency care facility.

NOTES TO PHYSICIAN

If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

Signs and symptoms of CNS depression, confusion and convulsions should be considered in the assessment and treatment of victims of exposures.

This product is primarily an irritant and corrosive. As a corrosive, give attention to potential complication of esophagus or stomach perforations if ingested. Use of emetics and lavage are contraindicated. Necrosis and associated inflammatory processes peak at about 48 hours, but may extend up to four days. Initial healing processes occur during the period 4 to 14 days, but the esophageal wall is weakest during this period.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce oxygen, chlorine gas and hydrochloric acid.

EXTINGUISHING MEDIA

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire. Use water spray to reduce vapors.

BASIC FIRE FIGHTING PROCEDURES

Evacuate area and fight fire from a safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak.

Use water spray to cool adjacent structures and to protect personnel. Shut off source of flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Fires involving this product may release hydrochloric acid.

May have hazardous or explosive reactions with primary amines, urea, ammonium salts, ethyleneimine or methanol.

Flash Point	WILL NOT FLASH
Autoignition Temperature	ND
Flammability Limits in Air, Lower, % by Volume	NA
Flammability Limits in Air, Upper, % by Volume	NA

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. (See Exposure Controls/Personal Protection in Section 8.)

ENVIRONMENTAL PRECAUTIONS

If product is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released product. Notify local, provincial and/or federal authorities, if required.

SPILL OR LEAK PROCEDURE

Large Spills: Dike far ahead of spill to contain until disposal. Small Spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Avoid clean up procedures that may result in water pollution. Stop leak when safe to do so.

Neutralize spill with agricultural lime (CaO), crushed limestone (CaCO₃), or sodium bicarbonate (NaHCO₃).

Do not touch or walk through spilled material.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

Avoid skin or eye contact. Do not inhale vapors or mists. Do not siphon this product by mouth.

Do not pour water into concentrated solution.

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in vented containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Store out of direct sunlight. See Stability and Reactivity (Section 10) for incompatibles. Avoid contact with acids, metals and explosives. This product is a strong oxidizer which should not come into contact with combustibles.

Empty containers may contain product residue. Do not reuse without adequate precautions.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

General or local exhaust ventilation and other forms of engineering controls are the preferred means for controlling exposures.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Wear chemical safety goggles and face shield. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid skin contact with this material. If skin contact is anticipated, protective clothing, including impervious gloves, should be worn. Additional protection may be necessary to prevent skin contact including use of apron, armcovers, face shield, or boots. Provide safety showers at any location where skin contact can occur.

Use good personal hygiene.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH/MSHA approved air purifying respirator with an appropriate acid gas cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

CLEAR YELLOWISH LIQUID WITH CHLORINE-LIKE ODOR

Boiling Point	DECOMPOSES > 212°F (100°C)
Specific Gravity	1.205 @ 20°C
Melting Point	6 °F (-14°C)
Percent Volatile	100 %
Vapor Pressure	17.5 mmHg @ 20°C
Vapor Density	ND
Bulk Density	8.8 LB/GAL
Solubility in Water	100 %
Octanol/Water Partn	NA
Volatile Organic	NA
Pour Point	NA
pH Value	11.8 - 12.6
Freezing Point	SEE MELTING POINT
Viscosity	ND
Evaporation Rate	1
Molecular Formula	NA
Molecular Weight	ND
Chemical Family	OXIDIZER
Odor Threshold	ND

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Incompatible with acids, ammonia, amines, urea, and reducing agents. Incompatible with combustibles, and metals such as nickel, copper, tin, manganese and iron. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce oxygen, chlorine gas and hydrochloric acid.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

LD50

LD50: CAS# 7681-52-9 Oral Rat 8.91 g/kg.

TOXICOLOGICAL DATA

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: spleen, skin, eye and respiratory system.

Exposure to components of this material may cause the following specific symptoms, depending on the concentration and duration of exposure: hemorrhage and edema of pharynx, glottis and larynx. Other symptoms of exposure may include the following: cardiovascular collapse, cyanosis and headache.

CARCINOGENICITY

This material contains sodium hypochlorite which is not listed by IARC, NTP or OSHA as a carcinogen.

TERATOGENICITY, MUTAGENICITY, OTHER REPRODUCTIVE EFFECTS

Sodium hypochlorite was found positive on activation in system with rat liver microsome fraction & S9 mixture applied to chromosomal aberration tests in vitro.

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the skin, eye and respiratory system.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This product, as supplied, when discarded or disposed of, is a hazardous waste according to Federal Regulations (40 CFR 261) due to corrosivity. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

In Canada, wastes should be disposed of according to federal, state, provincial and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

Hypochlorite Solution, 8, UN1791, PG III

**See Section 15 for any applicable reportable quantity (RQ) information.

BILL OF LADING - NON-BULK (U. S. DOT)

Hypochlorite Solution, 8, UN1791, PG III

The above description may not cover shipping in all cases, please consult 49 CFR 172.101 for specific shipping information.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All components of this product are listed on the TSCA Inventory.

This product, as supplied, contains sodium hypochlorite and sodium hydroxide which are Hazardous Substances as per 40 CFR Part 302.4. The reportable quantities for sodium hypochlorite and sodium hydroxide are 100 and 1000 pound(s), respectively. Any release of this product that results in a release of sodium hypochlorite and sodium hydroxide equal to or exceeding the reportable quantity must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR Part 302.6 and 40 CFR 355.40, respectively. Failure to report may result in substantial civil and criminal penalties. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations.

This product does not contain toxic chemicals (in excess of the applicable de minimis concentration) that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372).

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

There may be specific regulations at the local, regional or state/provincial level that pertain to this product.

SARA TITLE III RATINGS

Immediate Hazard:	X	Delayed Hazard:		Fire Hazard:	-	Pressure Hazard:	-
Reactivity Hazard:	X						

STATE REGULATIONS

Based on available information this product does not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65. Reformulation, use or processing of this product may affect its composition and require re-evaluation.

PENNSYLVANIA - Non-hazardous ingredients present at >3%: Water, CAS # 7732-18-5

INTERNATIONAL REGULATIONS

CANADA All known major components of this product are listed on the Canadian DSL.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

WHMIS Classification: D2B, E.

WHMIS RATINGS

Compressed Gas	-	Flammable/Combustible	-	Oxidizer	-	Acutely Toxic	-
Other Toxic Effects	X	Bio Hazardous	-	Corrosive	X	Dangerously Reactive	-

NFPA RATINGS

Health	3	Flammability	0	Reactivity	1	Special Hazards	
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HMIS RATINGS

Health	3	Flammability	0	Reactivity	1		
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16 OTHER INFORMATION

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Current Revision Date 29-Jul-2008

Replaces Sheet Dated 29-Jul-2008

Completed By Koch Chemical Technology Group, LLC, call (978) 694-7346 or (978) 657-4250