

Document # HSE-OHH/MSDS/052 Revision: 02	Safety Data Sheet Sodium Hypo Chlorite 12-16%	Date Prepared: 15-04-2013 Revision Date: 30-11-2017
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Section 1: Chemical Product and Company Identification



Company Identification: Engro Polymer & Chemicals Ltd

Engro Polymers & Chemicals Limited.
12th Floor, Ocean Towers, G-3, Khayaban-e-Iqbal, Block 9, Clifton, Karachi.

Emergency Telephone Number: (+92) 21-111-411-411

Product Name: Sodium Hypochlorite, 12-16%

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Sodium hypochlorite; Water

CI#: Not applicable.

Synonym: Chlorine Bleach, Soda Bleach; Sodium Hypochlorite, Solution, 12-16% Available Chlorine.

Chemical Name: Not applicable.

Chemical Formula: Not applicable

Section 2: Hazard Identification

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: Colorless to yellow

Physical State: Liquid

Appearance: Clear

Odor: Characteristic bleach odor

Signal Word: DANGER

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SERIOUS EYE DAMAGE. CAUSES SEVERE SKIN BURNS. CAUSES DAMAGE TO RESPIRATORY SYSTEM WHEN INHALED. TOXIC IF SWALLOWED. MAY CAUSE DAMAGE TO GASTROINTESTINAL TRACT WHEN SWALLOWED.

PHYSICAL HAZARDS: CORROSIVE TO METALS.

AQUATIC TOXICITY: Toxic to fish and aquatic organisms.

PRECAUTIONARY STATEMENTS: Do not breathe mist, vapors, or spray. Do not taste or swallow. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye, and face protection. Do not eat, drink or smoke when using this product. Keep only in original container. Avoid release to the environment. Store in a secure manner. Store in corrosive resistant container with a resistant inner liner.

GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS: Corrosive to Metals

GHS: CONTACT HAZARD - SKIN: Category 1C - Causes severe skin burns and eye damage.

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: TARGET ORGAN

TOXICITY (SINGLE EXPOSURE):

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Category 1 - Causes damage to: Respiratory System

GHS: CARCINOGENICITY: Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

UNKNOWN ACUTE TOXICITY: Listed below.

Unknown Acute Dermal Toxicity:

100% of this product consists of ingredient(s) of unknown acute dermal toxicity.

Unknown Acute Inhalation Toxicity:

100% of this product consists of ingredient(s) of unknown acute inhalation toxicity.

GHS SYMBOL:

Corrosion,



Health hazards



GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)

- May be corrosive to metals

GHS - Health Hazard Statement(s)

- Causes severe skin burns and eye damage
- Causes serious eye damage
- Causes damage to organs (Respiratory System)

GHS - Precautionary Statement(s) - Prevention

- Do not breathe mist, vapors, or spray
- Wear protective gloves, protective clothing, eye, and face protection
- Wash thoroughly after handling
- Do not eat, drink or smoke when using this product
- Keep only in original container

GHS - Precautionary Statement(s) - Response

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- Immediately call a POISON CENTER or doctor/physician
- Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
- Wash contaminated clothing before reuse
- IF exposed: Call a POISON CENTER or doctor/physician
- Absorb spillage to prevent material damage

GHS - Precautionary Statement(s) - Storage

- Store in a secure manner
- Store in corrosive resistant container with a resistant inner liner

GHS - Precautionary Statement(s) - Disposal

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

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Hazards Not Otherwise Classified (HNOC)

Contact with acids liberates toxic gas

See Section 11: TOXICOLOGICAL INFORMATION

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Sodium hypochlorite]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Sodium hypochlorite]. Mutagenic for mammalian somatic cells. [Sodium hydroxide]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lungs, mucous membranes, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 3: Composition and Information on Ingredients

Composition:

Name	CAS #	% by w/v
Sodium hypochlorite	7681-52-9	12-16
Sodium hydroxide	1310-73-2	1-2
Water	7732-18-5	84-88

Toxicological Data on Ingredients: Sodium hypochlorite: ORAL (LD50): Acute: 5800 mg/kg [Mouse]. 8910 mg/kg [Rat].

Sodium hydroxide LD50: Not available. LC50: Not available.

Potential Acute Health Effects:

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

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Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: combustible materials, organic materials, metals

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of heat. Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Releases chlorine when heated above 35 deg. C. The substance itself is non-combustible and does not burn. However, when heated to decomposition it emits corrosive and/or toxic fumes. May ignite combustibles. The heat of reaction with combustibles or organic materials may cause ignition. It may be a fire risk in contact with organic materials. Contact with metals may evolve flammable hydrogen gas.

Special Remarks on Explosion Hazards:
Anhydrous Sodium Hypochlorite is very explosive. Primary amines and calcium hypochlorite or sodium hypochlorite react to form normal chloroamines, which are explosive. Interaction of ethyleneimine with sodium (or other) hypochlorite gives the explosive N-chloro compd. Removal of formic acid from industrial waste streams with sodium hypochlorite soln becomes explosive at 55 deg C. Several explosions involving methanol and sodium hypochlorite were attributed to formation of methyl hypochlorite, especially in presence of acid or other esterification catalyst. Use of sodium hypochlorite soln to destroy acidified benzyl cyanide residues caused a violent explosion, thought to have been due to formation of nitrogen trichloride. (Sodiumhypochlorite).

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Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:

Corrosive liquid. Oxidizing material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material.

Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 20°C (68°F). Air Sensitive Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:

Face shield. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Sodium hypochlorite TWA: 1 CEIL: 1 (ppm as Cl₂) STEL: 1 (ppm as Cl₂) from ACGIH (TLV) [United States] Sodium hydroxide STEL: 2 (mg/m³) from ACGIH (TLV) [United States] TWA: 2 CEIL: 2 (mg/m³) from OSHA (PEL) [United States] CEIL: 2 (mg/m³) from NIOSH Consult local authorities for acceptable exposure limits.

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Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Clear Liquid.)
Odor: Characteristic. Chlorine-like (Strong.)
Taste: Not available.
Molecular Weight: 74.5
Color: Green to Yellowish. (Light.)
pH (1% soln/water): pH of 10% solution (100 g/l): 12 [Basic.]
Boiling Point: The lowest known value is 100°C (212°F) (Water).
Melting Point: Freezing pt: -3°C (26.6°F)
Critical Temperature: Not available.
Specific Gravity: 1.18 - 1.215 (Water = 1)
Vapor Pressure: 1.6 kPa (@ 20°C)
Vapor Density: The highest known value is 0.62 (Air = 1) (Water).
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: See solubility in water.
Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Incompatible materials, light, air, heat
Incompatibility with various substances: Slightly reactive to reactive with reducing agents, combustible materials, organic materials, metals, acids.
Corrosivity:
 Extremely corrosive in presence of aluminum. Moderately corrosive in presence of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.
Special Remarks on Reactivity:
 Decomposed by carbon dioxide from air. Slowly decomposes on contact with air. Unstable in air unless mixed with sodium hydroxide. Incompatible with ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, and ammonium phosphate. Decomposition of sodium hypochlorite takes place within a few seconds with these salts. Also incompatible with primary amines, phenyl acetonitrile, ethyleneimine, methanol, acidified benzyl cyanide, formic acid, urea, nitro compounds, methylcellulose, cellulose, aziridine, ether, ammonia. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas. Chloramine gas may be evolved when ammonia and bleach are mixed. Decomposed by hot water. Sensitive to light. Exposure to light accelerates decomposition.
Special Remarks on Corrosivity:
 Sodium Hypochlorite is extremely corrosive to brass, and moderately corrosive to bronze. There is no corrosivity information for copper.
Polymerization: Will not occur.

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Section 11: Toxicological Information

PRODUCT TOXICITY DATA: SODIUM HYPOCHLORITE (EPA)

COMPONENT TOXICITY DATA:

Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component LD50 Oral: LD50 Dermal: LC50 Inhalation:

Sodium hypochlorite 7681-52-9 (12-16 %)= 8200 mg/kg (Rat) 10000 mg/kg (Rabbit) Not listed

POTENTIAL HEALTH EFFECTS:

Eye contact: Causes serious eye damage. Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

Skin contact: Skin contact may be irritating and corrosive. Can cause skin burns.

Inhalation: Inhalation may cause coughing, choking, irritation (possibly severe), chemical burns, shortness of breath, and pulmonary edema. Pulmonary edema may develop several hours after a severe acute exposure.

Ingestion: Not a likely route of exposure in occupational settings. If swallowed, may cause irritation, swelling, pain, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

Chronic Effects: Repeated or prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:

Listed below.

Inhalation (Breathing): Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

Skin: Skin Corrosion. Skin exposure to gas or liquid may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.

Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

TOXICITY:

Carefully controlled sensitization studies on animal have not resulted in any reproducible positive findings. Standard sensitization patch tests in healthy human volunteers show no potential to induce contact sensitization. In tests using rats and mice, there was no evidence of carcinogenicity.

Interaction with Other Chemicals Which Enhance Toxicity: Mixing with ammonia, acids, detergents, or organic matter will release chlorinated compounds, which are irritating to eyes, lungs, and mucus membranes.

GHS HEALTH HAZARDS:

Listed below.

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CONTACT HAZARD -

SKIN:

Category 1C - Causes severe skin burns and eye damage.

Skin Absorbent / Dermal Route? No.

GHS: CARCINOGENICITY:

Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):

Category 1 - Respiratory system

MUTAGENIC DATA:

Not classified as a mutagen per GHS criteria. Sodium hypochlorite has tested positive in in vitro test systems and negative in in vivo test systems. These results are consistent with other germicides

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Section 12: Ecological Information

ECOTOXICITY DATA:

Aquatic Toxicity:

Data provided are for sodium hypochlorite.

Component	Freshwater Fish	Invertebrate Toxicity:	Algae Toxicity:	Other Toxicity:
Sodium hypochlorite 7681-52-9 (12.5-15)	- LC50 clupea harengus 0.033 - 0.097 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 cymatogaster aggregata 0.045 - 0.098 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 gasterosteus aculeatus 0.141 - 0.193 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 oncorhynchus gorbuscha 0.023 - 0.052 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 oncorhynchus kisutch 0.026 - 0.038 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 parophrys vetulus 0.044 - 0.144 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 pimephales promelas 0.22 - 0.62 mg/l/96 hr, flow through bioassay (pH: 7)	- EC50 ceriodaphnia sp. 0.006 mg/l/24 hr - EC50 daphnia magna 0.07 - 0.7 mg/l/24 hr - EC50 daphnia magna 2.1 mg/l/96 hr - EC50 gammarus fasciatus 4 mg/l/96 hr - EC50 nitocra spinipes 40 mg/l/96 hr - EC50 palaemonetes pugio 52 mg/l/96 hr	- ErC50 dunaliella sp. 0.6 mg/l/24 hr - ErC50 dunaliella tertiolecta 0.11 mg/l/24 hr - ErC50 skeletonema costatum 0.095 mg/l/24 hr	

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is believed not to persist in the environment.

HALF LIFE		
Hazardous Chemicals	Air	Water
NaOCl	115 days	220 days

Section 13: Disposal Considerations

Waste Disposal:

Do not discharge effluent containing this product into laks, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep on alkaline side and dilute with copious amounts of water. The main end-product is salt water. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

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Section 14: Transport Information

DOT Classification: Class 8: Corrosive material
Identification: : Hypochlorite solution UNNA: 1791 PG: III
Special Provisions for Transport: Not available

Section 15: Other Regulatory Information

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Pakistan Environmental Protection Act, 1997 and rules & regulation made thereunder, including in particular the Hazardous Substance Rules 2014.

Section 16: Other Information



Prepared by : Engro Polymer & Chemicals Ltd

Health Rating: 03 Flammability: 0 Reactivity Rating: 0

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