Comet Chemical Company Ltd.
3463 Thomas Street
Innisfill, ON, Canada, L9S 3W4
Telephone: (705) 436 5580



# SAFETY DATA SHEET

## SECTION 1. IDENTIFICATION

**Product identifier used on the label**
: **Chlorine (Sodium Hyprochlorite)**

**Product Code(s)** : Not available.

**Recommended use of the chemical and restrictions on use**
: Reagent; Chemical intermediate.
Restriction on use: None known

**Chemical family** : Mixture

**Name, address, and telephone number of the supplier:**

**Comet Chemical Company Ltd.**

3463 Thomas Street
Innisfill, ON, Canada
L9S 3W4

Supplier's Telephone # : 705-436-5580

**24 Hr. Emergency Tel #** : TERRRAPURE ENVIRONMENTAL : 800-567-7455

**Name, address, and telephone number of the manufacturer:**

Refer to supplier

## SECTION 2. HAZARDS IDENTIFICATION

**Classification of the chemical**

Clear to yellow liquid. Chlorine or bleach odor.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification
Corrosive to Metals - Category 1
Skin Corrosion/Irritation - Category 1
Serious eye damage/eye irritation - Category 1
Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory)

**Label elements**

*Hazard pictogram(s)*

*Signal Word*

DANGER!

*Hazard statement(s)*

May be corrosive to metals.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

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*Precautionary statement(s)*

Do not breathe mist or vapor.
Keep only in original packaging.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face protection.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTRE or doctor/physician.
Absorb spillage to prevent material damage.

Store in corrosive resistant container with a resistant inner liner.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other hazards**

Other hazards which do not result in classification: Ingestion can cause irritation and corrosive action in the mouth, stomach and digestive tract. Toxic fumes, gases or vapours may evolve on burning.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

| Chemical name | Common name and synonyms | CAS # | Concentration (% by weight) |
|---|---|---|---|
| **Sodium hypochlorite** | Hypochlorite solution; Javex; Bleach | 7681-52-9 | **10.0 - 12.0** |

The % concentrations for the above listed chemicals will vary from batch to batch. Concentrations listed represent the actual concentration range for each chemical.

## SECTION 4. FIRST-AID MEASURES

**Description of first aid measures**

*Ingestion* : Seek immediate medical attention/advice. Do not induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person.

*Inhalation* : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.

*Skin contact* : Remove/Take off immediately all contaminated clothing. Flush affected skin with gently flowing lukewarm water for at least 30 minutes. Do not rub area of contact. Seek immediate medical attention/advice. Wash contaminated clothing before reuse. Leather and shoes that have been contaminated with the solution may need to be destroyed.

*Eye contact* : Immediately flush eyes thoroughly with running water for at least 20 to 30 minutes. Seek immediate medical attention/advice.

# SAFETY DATA SHEET

**Most important symptoms and effects, both acute and delayed**

: May cause severe eye irritation. Permanent eye damage including blindness could result. Symptoms may include redness, pain, tearing and conjunctivitis. May cause respiratory irritation. Symptoms include coughing, shortness of breath and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Ingestion can cause irritation and corrosive action in the mouth, stomach and digestive tract. Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling.

**Indication of any immediate medical attention and special treatment needed**

: Immediate medical attention is required.Causes chemical burns. Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

**Extinguishing media**

*Suitable extinguishing media*

: Fires should be flooded with large amounts of water. Avoiding using other types of extinguishing materials, such as foam or dry chemicals.

*Unsuitable extinguishing media*

: Do not use dry chemical extinguishing agents that contain ammonium compounds. Do not use a solid water stream as it may scatter and spread fire.

**Special hazards arising from the substance or mixture / Conditions of flammability**

: Burning produces obnoxious and toxic fumes. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat.

**Flammability classification (OSHA 29 CFR 1910.106)**

: Not flammable.

**Hazardous combustion products**

: Sodium oxides. Oxygen; Hydrogen chloride;Chlorine

**Special protective equipment and precautions for firefighters**

*Protective equipment for fire-fighters*

: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

*Special fire-fighting procedures*

: Fight fires from a safe distance. Evacuate personnel to safe areas. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

: All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. For large spills, dike the area to prevent spreading.

**Methods and material for containment and cleaning up**

: Ventilate area of release. Remove all sources of ignition. Stop leak if you can do so without risk. Dike for water control. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Do not use combustible absorbents, such as sawdust. Contact the proper local authorities.

# SAFETY DATA SHEET

**Special spill response procedures**

: In case of transportation accident, contact TERRAPURE ENVIRONMENTAL at 1-800-567-7455. If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ):
sodium hypochlorite (100 lbs / 45.4 kg)

## SECTION 7. HANDLING AND STORAGE

**Precautions for safe handling**

: Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection. Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Label containers appropriately. Wash thoroughly after handling. Keep containers closed when not in use. When preparing or diluting solution, always add to water, slowly and with stirring.

**Conditions for safe storage** : Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area. Store in corrosion-resistant containers. Protect from sunlight.

**Incompatible materials** : Strong oxidizing agents and acids.;Amines.; Ammonia ;Metals (e.g. Aluminum, brass, copper)

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Limits:**

| Chemical Name | ACGIH TLV | | OSHA PEL | |
|---|---|---|---|---|
| | TWA | STEL | PEL | STEL |
| Sodium hypochlorite | N/Av | N/Av | N/Av | N/Av |

**Exposure controls**

**Ventilation and engineering measures**

: Provide exhaust ventilation or other engineering controls to keep the airborne concentration of vapours below their respective threshold limit value. Use explosion-proof equipment.

**Respiratory protection** : Respiratory protection is required if the concentrations exceed the TLV. Wear a positive-pressure supplied-air respirator. Advice should be sought from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

**Skin protection** : Wear protective gloves/clothing. Impervious gloves must be worn when using this product. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

**Eye / face protection** : Wear eye/face protection. Chemical splash goggles are recommended. A full face shield may also be necessary.

**Other protective equipment** : Full protective flameproof clothing. Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

**General hygiene considerations**

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: Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** : Colorless to light yellow.
**Odour** : Chlorine or bleach odor.
**Odour threshold** : N/Av
**pH** : 12.8
**Melting/Freezing point** : -15°C
**Initial boiling point and boiling range**
: 105°C
**Flash point** : N/Ap
**Flashpoint (Method)** : N/Ap
**Evaporation rate (BuAe = 1)** : Not available.
**Flammability (solid, gas)** : Not applicable.
**Lower flammable limit (% by vol.)**
: N/Ap
**Upper flammable limit (% by vol.)**
: N/Ap
**Oxidizing properties** : Product may slowly decompose in sunlight, generating small amounts of oxygen.
**Explosive properties** : Not explosive
**Vapour pressure** : 22 mmHg
**Vapour density** : (Air = 1) 2.5 (Chlorine gas)
**Relative density / Specific gravity**
: 1.16 g/cm3
**Solubility in water** : Soluble.
**Other solubility(ies)** : Not available.
**Partition coefficient: n-octanol/water or Coefficient of water/oil distribution**
: N/Av
**Auto-ignition temperature** : N/Av
**Decomposition temperature** : Not available.
**Viscosity** : Not available.
**Volatiles (% by weight)** : N/Av
**Volatile organic Compounds (VOC's)**
: N/Av
**Absolute pressure of container**
: N/Ap
**Flame projection length** : N/Ap
**Other physical/chemical comments**
: None known or reported by the manufacturer.

## SECTION 10. STABILITY AND REACTIVITY

**Reactivity** : May be corrosive to metals. Contact with metals may release small amounts of flammable hydrogen gas. Reacts with amines and ammonia compounds to form explosively unstable compounds.
**Chemical stability** : Stable under the recommended storage and handling conditions prescribed. May slowly decompose in air to form hazardous decomposition products. This process may be sped up by direct sunlight, heat and moisture.

# SAFETY DATA SHEET

**Possibility of hazardous reactions**
: No dangerous reaction known under conditions of normal use.

**Conditions to avoid** : Avoid heat and open flame. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials. Keep out of direct sunlight.

**Incompatible materials** : See Section 7 (Handling and Storage) for further details.

**Hazardous decomposition products**
: None known, refer to hazardous combustion products in Section 5.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure:

**Routes of entry inhalation** : YES

**Routes of entry skin & eye** : YES

**Routes of entry Ingestion** : YES

**Routes of exposure skin absorption**
: NO

### Potential Health Effects:

**Signs and symptoms of short-term (acute) exposure**

*Sign and symptoms Inhalation*
: If product is heated or mists are formed, inhalation may cause irritation to the nose, throat and respiratory tract. Symptoms may include coughing, choking and wheezing. Inhalation of extremely high concentrations could cause pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

*Sign and symptoms ingestion*
: May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, nausea, vomiting, diarrhea and collapse.

*Sign and symptoms skin* : Causes skin burns. Symptoms may include redness, blistering, pain and swelling.

*Sign and symptoms eyes* : Causes serious eye damage. Symptoms may include severe pain, tearing, redness, swelling and blurred vision. Permanent eye damage including blindness could result.

**Potential Chronic Health Effects**
: None known or reported by the manufacturer.

**Mutagenicity** : Not expected to be mutagenic in humans.

**Carcinogenicity** : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

**Reproductive effects & Teratogenicity**
: Not expected to have other reproductive effects.

**Sensitization to material** : Not expected to be a skin or respiratory sensitizer.

**Specific target organ effects** : Eyes, skin, respiratory system and digestive system.

This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory) May cause respiratory irritation.

**Medical conditions aggravated by overexposure**
: Pre-existing skin, eye and respiratory disorders.

**Synergistic materials** : N/Av

**Toxicological data** : There is no data available for this product. See below for individual ingredient acute toxicity data.

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| Chemical name | $LC_{50}$(4hr) inh, rat | $LD_{50}$ (Oral, rat) | $LD_{50}$ (Rabbit, dermal) |
|---|---|---|---|
| Sodium hypochlorite | >5250 mg/m³ (>5.25 mg/L) | 8800 mg/kg (12.5%); 5800 mg/kg (mouse) | >20 g/kg (12.5%) |

**Other important toxicological hazards**
: None known or reported by the manufacturer.

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity** : Very toxic to aquatic life with long lasting effects. Do not allow material to contaminate ground water system. See the following tables for the substance's ecotoxicity data.

***Ecotoxicity data:***

| Ingredients | CAS No | Toxicity to Fish | | |
|---|---|---|---|---|
| | | LC50 / 96h | NOEC / 21 day | M Factor |
| Sodium hypochlorite | 7681-52-9 | 0.059 mg/L (Rainbow trout) | 0.04 mg/L (Tidewater silverside) | 10 |

| Ingredients | CAS No | Toxicity to Daphnia | | |
|---|---|---|---|---|
| | | EC50 / 48h | NOEC / 21 day | M Factor |
| Sodium hypochlorite | 7681-52-9 | 0.032 mg/L Water flea | 0.02 mg/L (NOEC) (Mysid shrimp) | 10 |

| Ingredients | CAS No | Toxicity to Algae | | |
|---|---|---|---|---|
| | | EC50 / 96h or 72h | NOEC / 96h or 72h | M Factor |
| Sodium hypochlorite | 7681-52-9 | 46 mg/L/96hr (Red algae) | N/Av | None. |

**Persistence and degradability**
: Biodegradation is not applicable to inorganic materials.

**Bioaccumulation potential** : No data is available on the product itself.

| Components | Partition coefficient n-octanol/water (log Kow) | Bioconcentration factor (BCF) |
|---|---|---|
| Sodium hypochlorite (CAS 7681-52-9) | N/Ap | N/Ap |

**Mobility in soil** : No data is available on the product itself.

**Other Adverse Environmental effects**
: No data is available on the product itself.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Handling for Disposal** : Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous. Do not cut, weld, drill or grind on or near this container.

# SAFETY DATA SHEET

**Methods of Disposal** : Dispose in accordance with all applicable federal, state, provincial and local regulations.

**RCRA** : It is the responsibility of the waste generator to determine the proper waste identification and disposal method.
For disposal of unused or waste material, check with local, state and federal environmental agencies.

## SECTION 14. TRANSPORT INFORMATION

| Regulatory Information | UN Number | UN proper shipping name | Transport hazard class(es) | Packing Group | Label |
|---|---|---|---|---|---|
| TDG | UN1791 | HYPOCHLORITE SOLUTION | 8 | II |  |
| **TDG Additional information** | May be shipped as LIMITED QUANTITY when transported in quantities no larger than 1 Litre, in packages not exceeding 30 kg gross mass. This material may be shipped as an exempted marine pollutant in accordance with TDG Section 1.45.1 and Special Provision 99. | | | | |
| 49CFR/DOT | UN1791 | HYPOCHLORITE SOLUTION | 8 | II |  |
| **49CFR/DOT Additional information** | May be shipped as LIMITED QUANTITY when transported in quantities no larger than 1 Litre, in packages not exceeding 30 kg gross mass. | | | | |
| ICAO/IATA | UN1791 | Hypochlorite solution | 8 | II |  |
| **ICAO/IATA Additional information** | Refer to ICAO/IATA Packing Instruction | | | | |
| IMDG | UN1791 | HYPOCHLORITE SOLUTION | 8 | II |  |
| **IMDG Additional information** | Consult the IMDG regulations for exceptions. | | | | |

**Special precautions for user** : Appropriate advice on safety must accompany the package.

**Environmental hazards** : This substance meets the criteria for an environmentally hazardous substance according to the IMDG Code.See ECOLOGICAL INFORMATION, Section 12.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

: This information is not available.

## SECTION 15 - REGULATORY INFORMATION

**US Federal Information:**

Components listed below are present on the following U.S. Federal chemical lists:

# SAFETY DATA SHEET

| Ingredients | CAS # | TSCA Inventory | CERCLA Reportable Quantity(RQ) (40 CFR 117.302): | SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355: | SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical | |
|---|---|---|---|---|---|---|
| | | | | | Toxic Chemical | de minimus Concentration |
| Sodium hypochlorite | 7681-52-9 | Yes | 100 lb/ 45.4 kg | N/Av | No | N/Ap |

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Corrosive to metals ; Skin corrosion; Eye Damage; Specific target organ toxicity, single exposure.Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

**US State Right to Know Laws:**

The following chemicals are specifically listed by individual States:

| Ingredients | CAS # | California Proposition 65 | | State "Right to Know" Lists | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Listed | Type of Toxicity | CA | MA | MN | NJ | PA | RI |
| Sodium hypochlorite | 7681-52-9 | No | N/Ap | Yes | Yes | Yes | Yes | Yes | No |

**Canadian Information:**

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL). Canadian WHMIS Classification: Refer to Section 2 for a WHMIS Classification for this product.

**International Information:**

Components listed below are present on the following International Inventory list:

| Ingredients | CAS # | European EINECs | Australia AICS | Philippines PICCS | Japan ENCS | Korea KECI/KECL | China IECSC | NewZealand IOC |
|---|---|---|---|---|---|---|---|---|
| Sodium hypochlorite | 7681-52-9 | 231-668-3 | Present | Present | (1)-237 | KE-31506 | Present | HSR003698 |

## SECTION 16. OTHER INFORMATION

**Legend** : ACGIH: American Conference of Governmental Industrial Hygienists
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DOT: Department of Transportation
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
N/Ap: Not Applicable

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N/Av: Not Available
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

**References** : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016
2. International Agency for Research on Cancer Monographs, searched 2017
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2017(Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. US EPA Title III List of Lists - 2017 version.
6. California Proposition 65 List - 2017 version.
7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal,2017.

**Preparation Date (mm/dd/yyyy)** : 07/06/2017

**Other special considerations for handling** : Provide adequate information, instruction and training for operators.

| | |
|---|---|
| **Prepared for:**<br>Comet Chemical Company Ltd.<br>3463 Thomas Street<br>Innisfill, ON L9S 3W4<br>Information (M-F 8:00-5:00): 705-436-5580<br>www.cometchemical.com | COMET COMET CHEMICAL COMPANY LTD. |
| **Prepared by:**<br>ICC The Compliance Center Inc.<br>Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada)<br>http://www.thecompliancecenter.com | icc ComplianceCenter |

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**END OF DOCUMENT**