MATERIAL SAFETY DATA SHEET

Sodium Hypochlorite 5-15%

Section 01 - Chemical And Product And Company Information

Product Identifier ………………….. PrairieChlor-12, Hypochlor-12 Miraclean 12 Sodium Hypochlorite, 5-15 trade percent

Product Use ………………………….. Disinfectant, bleaching agent, source of available chlorine, deodorizer.

Supplier Name……………………… ClearTech Industries Inc.
2303 Hanselman Avenue
Saskatoon SK S7l 5Z3
Canada

Prepared By………………………… ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

Preparation Date……………….. June 25, 2003

24-Hour Emergency Phone……….. 306-664-2522

Section 02 - Composition / Information on Ingredients

Hazardous Ingredients…………… Sodium Hypochlorite 5.4 - 13.2
Sodium hydroxide 0.1 - 0.5
Sodium chloride 4 - 12

CAS Number……………………... Sodium Hypochlorite 7681-52-9
Sodium hydroxide 1310-73-2
Sodium chloride 7647-14-5

Synonym (s)………………………… Industrial bleach, hypo, bleach, Javel water, household bleach

Section 03 - Hazard Identification

Inhalation………………………….. Irritant of the nose and throat, causing coughing, difficulty breathing, and pulmonary edema.
Skin Contact / Absorption........... Causes severe skin irritation with blistering and ulceration.

Eye Contact............................. Causes severe irritation of the mucous membranes of the eyes. May cause severe eye damage.

Ingestion................................. Burning of the mouth and throat, abdominal cramps, nausea, vomiting, diarrhea, shock. May lead to convulsions, coma, and even death.

Exposure Limits....................... None established. Chlorine TLV = 1 ppm.

Section 04 - First Aid Measures

Inhalation.............................. Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption.......... Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists

Eye Contact............................ Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention

Ingestion............................... Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Give large amounts of water. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Section 05 - Fire Fighting

Conditions of Flammability........ Non-flammable.

Means of Extinction.................. Product does not burn. Use appropriate extinguishing media for material that is supplying the fuel to the fire.

Flash Point............................ Not Applicable.

Auto-ignition Temperature......... Not Applicable.

Upper Flammable Limit .............. Not Applicable.

Lower Flammable Limit.............. Not Applicable.
Hazardous Combustible Products. Decomposition may produce chlorine gas and/or hydrogen chloride gas.

Special Fire Fighting Procedures. Wear NIOSH-approved self-contained breathing Apparatus and protective clothing.

Explosion Hazards. Pressure buildup in containers could result in an explosion when heated or in contact with acidic fumes. Vigorous reaction with oxidizable organic materials may result in a fire.

Section 06 - Accidental Release Measures

Leak / Spill. Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Prevent material from entering sewers.

Deactivating Materials. Neutralize first with sodium sulphite for no chlorine residual, then with hydrochloric acid until the pH is 7.

Section 07 - Handling and Storage

Handling Procedures. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.

Storage Requirements. Store in a cool, dry, well-ventilated place. Keep container tightly closed, and away from incompatible materials. Venting of containers is advisable.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes. Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.

Respiratory. An NIOSH-approved respirator suitable for chlorine is recommended. Where a higher level of protection is required, use a self-contained breathing apparatus.

Gloves. Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing with soap and water, dry thoroughly before reuse.

Clothing. Body suits, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing with soap and water, dry thoroughly before reuse.

Footwear. Impervious boots of chemically resistant material should be worn at all times.
### Section 09 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Odor and Appearance</strong></td>
<td>Clear, greenish-yellow solution. Strong chlorine odour.</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Specific Gravity (Water=1)</strong></td>
<td>1.17 at 20°C (12%-trade)</td>
</tr>
<tr>
<td><strong>Vapor Pressure (mm Hg, 20°C)</strong></td>
<td>12.1 mm Hg at 20°C (12.5-wt %)</td>
</tr>
<tr>
<td><strong>Vapor Density (Air=1)</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>Decomposes (not applicable)</td>
</tr>
<tr>
<td><strong>Freeze/Melting Point</strong></td>
<td>~ -15°C (12%-trade)</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>&lt; 12</td>
</tr>
<tr>
<td><strong>Water/Oil Distribution Coefficient</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Bulk Density</strong></td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>% Volatiles by Volume</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Solubility in Water</strong></td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>NaOCl</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>74.44</td>
</tr>
</tbody>
</table>
Stability ................................................................. Unstable at temperatures above 40°C, in sunlight, and in contact with acid.

Incompatibility ......................................................... Incompatible with strong acids, ammonia, oxidizable materials, nickel, copper, tin, manganese, and iron.

Hazardous Products of Decomposition Chlorine (by reaction with acids), oxygen (by reaction with nickel, copper, tin, manganese, iron), sodium chloride, sodium chlorate, with increased temperature.

Polymerization ......................................................... Will not occur.

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Section 11 - Toxicological Information

Irritancy ................................................................. Strong Irritant.

Sensitization ......................................................... Not Available.

Chronic/Acute Effects ............................................. If over-exposed to the solution, there will be constant irritation of the eyes, nose, and throat.

Synergistic Materials .............................................. Not Available.

Animal Toxicity Data ............................... \( \text{LD}_{50}(\text{oral, rat}) = 8910 \text{ mg/kg (100\% sodium hypochlorite)} \)
\( \text{LC}_{50}(\text{inhalation, rat, 1 hour}) > 10000 \text{ mg/m}^3 \)

Carcinogenicity ................................................... Not considered to be carcinogenic (IARC and ACGIH).

Reproductive Toxicity ................................. Not Available.

Teratogenicity ...................................................... Not Available.

Mutagenicity ......................................................... Not Available.

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Section 12 - Ecological Information

Fish Toxicity ........................................................ Not Available.

Biodegradability ............................................... Not Available.

Environmental Effects ................................. Not Available.

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Section 13 - Disposal Considerations

Waste Disposal ...................................................... Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Section 14 - Transportation Information

TDG Classification

Class………………………………….. 8
Group……………………………… III
PIN Number………………………….. UN1791
Other………………………………… Secure containers (full and/or empty) with suitable hold down devises during shipment.

Section 15 - Regulatory Information

WHMIS Classification……………….. E

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

ClearTech Industries Inc. - Locations

Corporate Head Office: 2302 Hanselman Avenue, Saskatoon, SK, S7L 5Z3
Phone: 306-664-2522
Fax: 306-665-6216
www.ClearTech.ca

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Postal Code</th>
<th>Phone Number</th>
<th>Fax Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richmond BC</td>
<td>12431 Horseshoe way</td>
<td>V7A 4X6</td>
<td>604-272-4000</td>
<td>604-272-4596</td>
</tr>
<tr>
<td>Calgary AB</td>
<td>5516E - 40” St. S.E.</td>
<td>T2C 2A1</td>
<td>403-279-1096</td>
<td>403-236-0989</td>
</tr>
<tr>
<td>Edmonton AB</td>
<td>11750 - 180th Street</td>
<td>T5S 1N7</td>
<td>780-452-6000</td>
<td>780-452-4600</td>
</tr>
<tr>
<td>Saskatoon SK</td>
<td>2302 Hanselman Avenue</td>
<td>S7L 5Z3</td>
<td>306-933-0177</td>
<td>306-933-3282</td>
</tr>
<tr>
<td>Regina SK</td>
<td>555 Henderson Drive</td>
<td>S42 5X2</td>
<td>306-721-7737</td>
<td>306-721-8611</td>
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<tr>
<td>Winnipeg MB</td>
<td>340 Saulteaux Crescent</td>
<td>R3J 3T2</td>
<td>204-987-9777</td>
<td>204-987-9770</td>
</tr>
<tr>
<td>Mississauga ON</td>
<td>7480 Bath Road</td>
<td>L4T 1L2</td>
<td>905-612-0566</td>
<td>905-612-0575</td>
</tr>
</tbody>
</table>

24 Hour Emergency Number - All Locations - 306-664-2522