**Section 1 - Product and Company Information**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Sodium Hypochlorite Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>71696</td>
</tr>
<tr>
<td>Brand</td>
<td>FLUKA</td>
</tr>
<tr>
<td>Company</td>
<td>Sigma-Aldrich Canada, Ltd</td>
</tr>
<tr>
<td>Address</td>
<td>2149 Winston Park Drive</td>
</tr>
<tr>
<td></td>
<td>Oakville ON L6H 6J8 CA</td>
</tr>
<tr>
<td>Technical Phone:</td>
<td>9058299500</td>
</tr>
<tr>
<td>Fax:</td>
<td>9058299292</td>
</tr>
<tr>
<td>Emergency Phone:</td>
<td>800-424-9300</td>
</tr>
</tbody>
</table>

**Section 2 - Composition/Information on Ingredient**

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hypochlorite, 10 % = C &lt; 25</td>
<td>None</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Percent</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;= 85</td>
<td>No</td>
</tr>
<tr>
<td>Sodium Hypochlorite</td>
<td>7681-52-9</td>
<td>&gt;= 10</td>
<td>No</td>
</tr>
</tbody>
</table>

**Formula**

NaOCl

**Synonyms**

Antiformin * B-K liquid * Carrel-dakin solution * Chloros * Chlorox * Clorox * Dakins solution * Deosan * Hyclorite * Hypochlorite solution containing >7% available chlorine by wt. (UN1791) * Javex * Klorocin * Milton * Neo-cleaner * Neoseptal CL * Parozone * Purin B * Sodium chloride oxide * Sodium hypochlorite * Sodium oxychloride * Surchlor

**RTECS Number:** NH3486300

**Section 3 - Hazards Identification**

**Emergency Overview**

Corrosive.

Contact with acids liberates toxic gas. Causes burns.

**HMIS Rating**

- **Health:** 3
- **Flammability:** 0
- **Reactivity:** 0

**NFPA Rating**

- **Health:** 3
- **Flammability:** 0
- **Reactivity:** 0

For additional information on toxicity, please refer to Section 11.
Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Noncombustible. Use extinguishing media appropriate to surrounding fire conditions.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.
Incompatible Materials: Acids

SPECIAL REQUIREMENTS
Avoid contact with acid.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.
Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>74.44 AMU</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>BP/BP Range</td>
<td>111 °C</td>
<td>760 mmHg</td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>-30.0 to -20. °C</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>17.5 mmHg</td>
<td>20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
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<td></td>
</tr>
<tr>
<td>Saturated Vapor Conc.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SG/Density</td>
<td>1.2 to 1.25 g/cm3</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
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<td></td>
</tr>
<tr>
<td>Volatile%</td>
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<td></td>
</tr>
<tr>
<td>VOC Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Water Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solvent Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Surface Tension</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temp.</td>
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<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Refractive Index</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Optical Rotation</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Data</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>Solubility in Water: Miscible.</td>
<td></td>
</tr>
</tbody>
</table>

N/A = not available
Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong acids, Organic materials, Finely powdered metals, Forms explosive mixtures with:, Amines Reacts violently with ammonium salts, aziridine, methanol, and phenylacetoneitrile, sometimes resulting in explosions. Reacts with primary aliphatic or aromatic amines to form explosively unstable n-chloroamines. Reaction with formic acid becomes explosive at 55°C.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Chlorine, Hydrogen chloride gas, Sodium oxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes burns.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes burns.
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

TOXICITY DATA

Oral
Mouse
5800 mg/kg
LD50
Remarks: Behavioral:Change in motor activity (specific assay).
Gastrointestinal:Other changes.

IRRITATION DATA

Eyes
Rabbit
10 mg
Remarks: Moderate irritation effect

CHRONIC EXPOSURE - CARCINOGEN
Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST
Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 100 PPM  
Exposure Time: 24h  
Cell Type: lymphocyte  
Mutation test: Cytogenetic analysis

Species: Human  
Dose: 149 MG/L  
Cell Type: Embryo  
Mutation test: Sister chromatid exchange

Species: Hamster  
Dose: 100 MG/L  
Cell Type: lung  
Mutation test: Cytogenetic analysis  
Mutation test: Histidine reversion (Ames)

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 24 h  
Value: 0.070 - 0.7 mg/l

Test Type: LC50 Fish  
Species: Pimephales promelas (Fathead minnow)  
Time: 96 h  
Value: 0.22 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Hypochlorite solutions  
UN#: 1791  
Class: 8  
Packing Group: Packing Group III  
Hazard Label: Corrosive  
PIH: Not PIH

IATA
Proper Shipping Name: Hypochlorite solution  
IATA UN Number: 1791  
Hazard Class: 8  
Packing Group: III

Section 15 - Regulatory Information
EU ADDITIONAL CLASSIFICATION
Symbol of Danger: C
Indication of Danger: Corrosive.
R: 31-34
Risk Statements: Contact with acids liberates toxic gas. Causes burns.
S: 26-36/37/39-45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Corrosive.
Risk Statements: Contact with acids liberates toxic gas. Causes burns.
Safety Statements: Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.