1. IDENTIFICATION

Product Identifier
Product Name
Champion 10% Pool Shock

Other means of identification
SDS # CPD-001

Registration Number(s)
EPA Registration: 55852-2

Recommended use of the chemical and restrictions on use
Recommended Use Pool sanitizer/shock.

Details of the supplier of the safety data sheet
Supplier Address
Champion Packaging & Distribution
1840 International pkwy
Woodridge, IL 60517

Emergency Telephone Number
Company Phone Number 630-972-0100
Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Clear to yellow liquid
Physical State Liquid
Odor Pungent, irritating, that of household bleach

Classification

| Skin corrosion/irritation | Category 1 Sub-category C |
| Serious eye damage/eye irritation | Category 1 |

Signal Word
Danger

Hazard Statements
Causes severe skin burns and eye damage

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a poison center or doctor/physician
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 or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a poison center or doctor/physician
IF SWALLOWED: rinse mouth. Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other Hazards
Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>10-20</td>
</tr>
</tbody>
</table>

**If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.**

4. FIRST-AID MEASURES

First Aid Measures

General Advice
Immediately call a poison center or doctor/physician.

Eye Contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Immediately call a poison center or doctor/physician.

Skin Contact
Immediately flush with soap and water.

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

Ingestion
Immediately call a poison center or doctor/physician. Rinse mouth. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects

Symptoms
Causes severe skin burns and eye damage. Respiratory tract irritant. Ingestion can cause corrosion of the mucous membranes.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water. Carbon dioxide (CO2). Dry chemical. Foam.

Unsuitable Extinguishing Media
Not determined.
Specific Hazards Arising from the Chemical
Not considered to be a fire hazard. Not considered to be an explosion hazard.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Move unprotected personnel upwind out of danger. Dilute with water and flush to local sewer system, if permitted. Solid waste must be disposed of in a permitted waste management facility. Ensure compliance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands, and any exposed skin thoroughly after handling. Wear protective gloves/protective clothing and eye/face protection.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store locked up. Store in a cool, dry, well-ventilated place. Protect container from physical damage. Store away from incompatible materials.

Incompatible Materials Reacts vigorously with Amine, Ammonium Acetate, Ammonium Oxalate, Acids and most organics.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Controls Local exhaust ventilation recommended. Eyewash stations. Showers.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Use chemical safety goggles impervious to product. Contact lenses should not be worn when working with this material.

Skin and Body Protection Wear impervious protective clothing including boots, gloves, lab coat, apron, or coveralls to prevent skin contact.

Respiratory Protection (NIOSH Approved) Recommended for all personnel working in or about an area of potential exposure.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.
9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear to yellow liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent, irritating, that of household bleach</td>
</tr>
<tr>
<td>Color</td>
<td>Clear to yellow</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH</td>
<td>12.3-12.9</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>Not determined</td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>Decomposes prior to boiling</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammability (Solid, Gas)</td>
<td>Liquid- Not applicable</td>
</tr>
<tr>
<td>Upper Flammability Limits</td>
<td>Not determined</td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Approximately that of air</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.155</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Completely soluble</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>Not determined</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>Not determined</td>
</tr>
<tr>
<td>Dynamic Viscosity</td>
<td>Not determined</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>Not determined</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical Stability
Stable under ordinary conditions of use and storage. Unstable at elevated temperatures.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Polymerization
This substance does not polymerize.

Conditions to Avoid
Excessive heat and fire. Incompatible Materials.

Incompatible Materials
Reacts vigorously with Amine, Ammonium Acetate, Ammonium Oxalate, Acids and most organics.

Hazardous Decomposition Products
Decomposes under various mechanisms. May generate chlorine or oxygen which can be toxic and explosive, respectively.

11. TOXICOLOGICAL INFORMATION
Information on likely routes of exposure

Product Information

Eye Contact Causes severe eye damage.
Skin Contact Causes severe skin burns.
Inhalation Do not inhale.
Ingestion Do not ingest.

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>= 8200 mg/kg (Rat)</td>
<td>&gt; 10000 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Group 3 IARC components are “not classifiable as human carcinogens”.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td></td>
<td>Group 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend

IARC (International Agency for Research on Cancer)
Group 3 IARC components are "not classifiable as human carcinogens"

Numerical measures of toxicity

Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>0.095; 24 h Skeletonema costatum mg/L EC50</td>
<td>0.06 - 0.11: 96 h Pimephales promelas mg/L LC50 flow-through 4.5 - 7.6: 96 h Pimephales promelas mg/L LC50 static 0.4 - 0.8: 96 h Lepomis macrochirus mg/L LC50 static 0.28 - 1: 96 h Lepomis macrochirus mg/L LC50 flow-through 0.05 - 0.771: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.03 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 0.18 - 0.22: 96 h Oncorhynchus mykiss mg/L LC50 static</td>
<td>2.1: 96 h Daphnia magna mg/L EC50 0.033 - 0.044: 48 h Daphnia magna mg/L EC50 Static</td>
<td></td>
</tr>
</tbody>
</table>

Persistence/Degradability

Not determined.
Bioaccumulation
Not determined.

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note
Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

Proper Shipping Name
Consumer commodity

Hazard Class
ORM-D

Packing Group
III

IATA

UN/ID No
UN1791

Proper Shipping Name
Hypochlorite solutions

Hazard Class
8

Packing Group
III

IMDG

UN/ID No
UN1791

Proper Shipping Name
Hypochlorite solutions

Hazard Class
8

Packing Group
III

Marine Pollutant
This material may meet the definition of a marine pollutant

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>Present</td>
<td>X</td>
<td></td>
<td>Present</td>
<td>Present</td>
<td>X</td>
<td>Present</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
US Federal Regulations

CERCLA

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>100 lb</td>
<td></td>
<td>RQ 100 lb final RQ</td>
</tr>
<tr>
<td>7681-52-9</td>
<td></td>
<td></td>
<td>RQ 45.4 kg final RQ</td>
</tr>
</tbody>
</table>

SARA 313
Not determined

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>100 lb</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7681-52-9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>B</td>
</tr>
</tbody>
</table>

Issue Date: 01-May-2006
Revision Date: 02-Dec-2014
Revision Note: New format

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet
Buckman's Sodium Hypochlorite Solution

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date: 04/15/2015  Supersedes: 04/08/2013  Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product name : Buckman's Sodium Hypochlorite Solution
Product form : Mixture
EPA Reg. No.: 42052-20001

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : Cleaning formulations, Bleaching, Non-pesticide Chemical Manufacturing and Swimming Pool Water Disinfection

1.3. Details of the supplier of the safety data sheet
Buckman's Inc.
105 Airport Road
Pottstown, PA 19464-3438
610-495-7495

1.4. Emergency telephone number
Emergency number : CHEMTREC: (800) 424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US classification
Skin Corr. 1A  H314

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US)

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage
Precautionary statements (GHS-US)
P260 - Do not breathe vapours, mist, fume
P264 - Wash hands, forearms and face thoroughly after handling
P265 - Wear eye protection, protective gloves
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a doctor, a poison center
P321 - Specific treatment (see Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work on this label)
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>(CAS No) 10769-52-9</td>
<td>12.5 - 15</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>(CAS No) 1310-73-2</td>
<td>1 - 6</td>
</tr>
</tbody>
</table>

04/15/2015  Buckman's Sodium Hypochlorite Solution  Page 1
SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general

If exposed or concemed, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing is affected. If breathing is difficult, supply oxygen.

First-aid measures after skin contact

IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. Get medical attention immediately.

First-aid measures after eye contact

IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.

First-aid measures after ingestion

IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center or medical professional. Get medical attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/injuries
Causes severe skin burns and eye damage.

Symptoms/injuries after inhalation
May cause respiratory irritation.

Symptoms/injuries after skin contact
Highly corrosive to skin.

Symptoms/injuries after eye contact
Causes serious eye damage.

Symptoms/injuries after ingestion
May cause gastrointestinal irritation.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard
May cause fire or explosion; strong oxidizer.

Explosion hazard
Product is not explosive.

Reactivity
Acid contamination will produce very irritating fumes similar to chlorine.

5.3. Advice for firefighters
Firefighting instructions
Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment. Prevent human exposure to fire, fumes, smoke and products of combustion.

Protection during firefighting
Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures
Evacuate area. Keep upwind. Ventilate area. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel
Protective equipment
Wear protective equipment as described in Section 8.

Emergency procedures
Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment
Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment
Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up
Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Do not use sawdust or other combustible materials to absorb hypochlorite solutions. Dilute with plenty of water. Reduce with agents such as bisulfites or ferrous salt solutions. Wash spill area thoroughly with plenty of soap and water. Place in a polyethylene container for disposal in accordance with the waste regulations (see Section 13).

6.4. Reference to other sections
No additional information available
Buckman's Sodium Hypochlorite Solution
Safety Data Sheet
Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors, mist. Avoid contact with skin, eyes and clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions
Store in dry, well-ventilated area. Keep container closed when not in use. Stability decreases upon exposure to heat and light. Store in a dark area.

Incompatible materials

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Sodium hydroxide (1310-73-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH Ceiling (mg/m³)</td>
</tr>
<tr>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium hypochlorite (7681-52-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remark (ACGIH)</td>
</tr>
<tr>
<td>Remark (OSHA)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment
Gloves. Wear chemical goggles and face shield in combination. Protective clothing.

Hand protection
Use gloves chemically-resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1298. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl. Change contaminated gloves immediately. Suitable gloves for this specific application can be recommended by the glove supplier.

Eye protection
Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to splashing liquid or airborne particles. Chemical goggles and face shield must be worn in combination.

Skin and body protection
Wear long-sleeves, and chemically impervious PPE/covers or to minimize bodily exposure.

Respiratory protection
Use NIOSH-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Colorless. Light yellow-green.</td>
</tr>
<tr>
<td>Odor</td>
<td>Chlorine-like.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>12 @ 100 g/l</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-20 °C (-3 °F) Approximately</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 110 °C (230 °F) Decomposes</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>12.1 mm Hg @ 20 °C (68 °F)</td>
</tr>
</tbody>
</table>
Buckman’s Sodium Hypochlorite Solution
Safety Data Sheet
Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Relative vapour density at 20 °C : No data available
Relative density : 1.2
Solubility : Water: 100 %
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Acid contamination will produce very irritating fumes similar to chlorine.

10.2. Chemical stability
Stability decreases with concentration, heat, light, decrease in pH and contamination by metals.

10.3. Possibility of hazardous reactions
Sodium hypochlorite and its solutions decompose when heated. Decomposition products may cause container to rupture.

10.4. Conditions to avoid
Heat. Direct sunlight.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Acid fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified

Sodium hydroxide (1310-73-2)
LD50 dermal rabbit : 1350 mg/kg

Sodium hypochlorite (7681-52-9)
LD50 oral rat : 8200 mg/kg
LD50 dermal rabbit : 10000 mg/kg

Skin corrosion/irritation : Causes severe skin burns. pH: 12 @ 100 g/L.
Serious eye damage/irritation : Causes serious eye damage. pH: 12 @ 100 g/L.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified
Symptoms/Injuries after inhalation : May cause respiratory irritation.
Symptoms/Injuries after skin contact : Highly corrosive to skin.
Symptoms/Injuries after eye contact : Causes serious eye damage.
Symptoms/Injuries after ingestion : May cause gastrointestinal irritation.
SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: No information available.

12.2. Persistence and degradability
Buckman’s Sodium Hypochlorite Solution
Persistence and degradability: No information available.

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Do not discharge to public wastewater systems without permit of pollution control authorities. No discharge to surface waters is allowed without an NPDES permit.
Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

SECTION 14: Transport information

In accordance with DOT
Transport document description: UN1791 Hypochlorite Solutions, 8, III
UN-No. (DOT): 1791
DOT NA no.: UN1791
Proper Shipping Name (DOT): Hypochlorite Solutions
Department of Transportation (DOT) Hazard Classes:
Hazard labels (DOT): 8 - Corrosive

Packing group (DOT): III - Minor Danger
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) 60 L
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

Additional information
Other information: No supplementary information available.

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations
Buckman’s Sodium Hypochlorite Solution
All chemical substances in this product are listed in the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Inventory
SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard
Buckman's Sodium Hypochlorite Solution
Safety Data Sheet
Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Sodium hydroxide (1310-73-2)
CERCLA RQ (Reportable quantity, of EPA's List of Lists): 1000 lb

Sodium hypochlorite (7681-52-9)
CERCLA RQ (Reportable quantity of EPA's List of Lists): 100 lb

15.2. International regulations
No additional information available.

15.3. US State regulations
California Proposition 65
This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Sodium hydroxide (1310-73-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Sodium hypochlorite (7681-52-9)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Indication of changes: Revision 3.0.
Revision date: 04/15/2015
Other information: Author: BCS.

NFPA health hazard: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.
NFPA fire hazard: 0 - Materials that will not burn.
NFPA reactivity: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

HMIS III Rating
Health: 3
Flammability: 0
Physical: 1
Personal Protection:

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Manufacturer or Seller will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein.
SDS  SAFETY DATA SHEET

24 Hour Emergency Telephone Number CHEMTREC 1-800-424-9300
SUNBELT CHEMICALS CORP. 71 HARGROVE GRADE PALM COAST, FLORIDA 32137

All non-emergency questions should be directed to Customer Service (1-386-446-4595) for assistance.

10% SODIUM HYPOCHLORITE SOLUTION

1. Product Identification

Synonyms: chlorinating solution, swimming pool chlorine, a solution of chlorine in alkaline water, liquid chlorinizer
CAS Number: 7681-52-9
Product Name: SMART BRAND LIQUI-SHOCK
Part Numbers: 00120, 02120, 05120, 55120, 15120
UPC Codes: 017926001202, 017926121207(2 pack), 00017926151204, 10017926551209, 017926051201
Supplier GLN: 00179264004142
GTIN: 0017926001202 & 10017926021207 (2 pack I2 of 5)

2. Hazard Identification

Emergency Overview:
DANGER!
Causes severe skin burns and eye damage.
May cause respiratory irritation.
Onset of symptoms may be delayed following exposure.
Toxic to aquatic life.

Note to Physician: Consider oral administration of sodium thiosulfate solutions if sodium hypochlorite is ingested. Do not administer neutralizing agents, exothermic reaction may result and cause further damage.

3. Product Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hypochlorite</td>
<td>10</td>
</tr>
<tr>
<td>CAS Number:</td>
<td>7681-52-9</td>
</tr>
<tr>
<td>GHS Classification:</td>
<td>Corrosive 1B, STOT-SE 3, Acute Aquatic 1; H314, H335, H400</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>0.3 – 5</td>
</tr>
<tr>
<td>CAS Number:</td>
<td>1310-73-2</td>
</tr>
<tr>
<td>GHS Classification:</td>
<td>Corrosive 1B, STOT-SE 3; H314, H335</td>
</tr>
<tr>
<td>Water</td>
<td>Balance</td>
</tr>
<tr>
<td>CAS Number:</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>GHS Classification:</td>
<td>Not considered hazardous according to GHS criteria.</td>
</tr>
</tbody>
</table>
4. First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

Ingestion: If swallowed DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Skin Contact: In case of contact with liquid, immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Seek immediate medical attention.

Eye Contact: Immediately flush eyes with plenty of flowing water for at least 15 minutes, while lifting upper and lower eyelids. Seek immediate medical attention.

5. Fire Fighting Measures

NFPA 704 ratings: Health 2  Flammability 0  Reactivity 1  Other Hazards: Corrosive

Fire: Not considered to be a fire hazard. Releases oxygen when heated, causing increased severity of an existing fire.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Water or water spray to cool fire exposed containers. Use any means to extinguish surrounding fire.

Special Information: In the event of fire, wear full protective clothing and NIOSH approved self contained breathing apparatus (SCBA), with full face shield, operated in positive pressure mode. Stay away from ends of tanks. Cool tanks and drums with water spray until well after fire is out.

6. Accidental Release Measures

Adequately ventilate area of leak or spill. Wear appropriate personal protective equipment (PPE), as specified in Section 8. Isolate area to keep unprotected personnel from entering. Stop the leak if possible. Contain and recover liquid when possible. Absorb spilled liquid with an inert material, such as vermiculite, sand, or earth and place recovered material in an approved, compatible chemical waste container. Do not use combustible materials such as cardboard or saw dust as an absorbent. EPA regulations require reporting spills and releases to the soil, air and water, in excess of the reportable quantity (103.4 gallons of solution), to the National Response Center, telephone number 1-800-424-8802. Reporting to the State Emergency Response Commission (SERC) warning point and local authorities (911) is also required. Notify CHEMTREC, for specific information, in the event of any transportation related spills or leaks. (1-800-424-9300). See Section 13 of this MSDS for more information.

7. Handling and Storage

Store in a cool, dry, ventilated storage area with good drainage. Protect from physical damage. Keep out of sunlight, away from direct heat, water and incompatible materials. Do not wash out container and use it for other purposes. Observe all warnings and precautions stated on the container label. Wear personal protective equipment when handling, opening containers and using hypochlorite solutions.
8. Exposure Control and Personal Protection

Airborne Exposure Limits:

| OSHA PEL | 1 ppm as Cl2 (TWA) |
| OSHA STEL | 3 ppm as Cl2 |
| WEEL (AIHA) | 2 mg/m3, 15 minute TWA as Cl2 |
| ACGIH TLV and TWA | 0.5 ppm as Cl2 |
| ACGIH STEL | 1 ppm as Cl2 |
| NIOSH Immediately Dangerous Level (IDLH) | unavailable |

Ventilation: A system of local and/or general exhaust is recommended to keep exposure below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion into occupied areas.

Personal Respirators (NIOSH Approved): If exposure limits are exceeded and engineering controls are not feasible, a full face respirator, with an acid gas cartridge, may be worn up to 50 times the permissible exposure limit (PEL). For emergencies or instances where the exposure levels are not known, use a full face, positive pressure, air supplied respirator. WARNING: Air purifying respirators do not provide protection in oxygen deficient atmospheres.

Skin Protection: Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick drench facilities (safety shower) in work areas.

9. Physical and Chemical Properties

| Appearance | Yellow to light green liquid. |
| Solubility | Infinitely soluble in water. |
| Percent Volatile | n/a |
| Vapor Density | unavailable |
| Evaporation Rate | < 1 (butyl acetate = 1) |

Odor: Bleach like odor.
Specific Gravity: 1.15 – 1.16
Boiling Point: 180°F decomposes slightly
Vapor Pressure: 17.5 @ 68°F
pH: 11 to 14

10. Stability and Reactivity

Stability: Slowly decomposes on contact with air. Decomposition rate increases with concentration and temperature. Exposure to sunlight accelerates decomposition. Sodium hypochlorite solutions become less toxic with age.

Hazardous Decomposition Products: When heated to decomposition, emits toxic chlorine fumes and will react with water or steam to produce heat and toxic, corrosive fumes. Thermal decomposition results in the emission of chlorine oxides.

Hazardous Polymerization: Will not occur.

Incompatibilities: Ammonia (chloramines gas may evolve), amines, ammonium salts, acids, methanol, cellulose, reducing agents, oxidizing metals, and bisulfates.
11. Toxicological Information
Acute Oral LD50 in rats: 8200 mg/kg
Acute dermal LD50 in rabbits: 10,000 mg/kg
Inhalation LC50 – no data
Not listed on the OSHA, NTP, ACGIH or IARC list of carcinogens or potential carcinogens.

12. Ecological Information
Environmental Fate: Degrades slowly to sodium chloride, sodium chlorate and oxygen.

Environmental Toxicity: Highly toxic to aquatic organisms.

13. Disposal Considerations
In case of a spill, flood area with large quantities of water. Small quantities of spilled or unusable product should be diluted with water before disposal to a sanitary sewer (through toilet).

State and local disposal regulations may slightly differ from Federal regulations. Dispose of waste in a facility permitted for non-hazardous waste.

Do not reuse empty container. Triple rinse container and place into trash or recycle bin where facilities accept pigmented white HDPE bottles.

Do not allow product to enter storm drains, lakes, streams or other bodies of water. Not harmful to septic systems.

14. Transport Information
Proper Shipping Name: 1.3 gallons, or less, is classified in accordance with DOT regulation 49 CFR 173.154, as: ORM-D, CONSUMER COMMODITY

Full Shipping Description: HYPOCHLORITE SOLUTIONS, 8, UN1791, PGIII (> 1.3 gal)

15. Regulatory Information
U.N GHS Classification & Labeling Information

Classification: Corrosive 1B
 Specific Target Organ Toxicity (STOT)
 Single Exposure 3
 Acute Aquatic

Signal Word: Danger

H Statements: H314: Causes severe skin burns and eye damage
 H335: May cause respiratory irritation
 H401: Toxic to aquatic life

P Statements: P307+315: If exposed, get immediate medical attention.
 P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P264: Wash thoroughly after handling.
 P273: Avoid release into the environment.
Regulated Ingredients:
Sodium Hypochlorite (CAS # 7681-52-9)
Sodium Hydroxide (CAS # 1310-73-2)

OSHA Classification:
Physical Hazards: Reactivity  Health Hazards: Acute Health Hazard, Corrosive

TSCA Inventory Listed: All components are listed in TSCA inventory (40CFR 710)

CERLA RQ: 100 lbs. of sodium hypochlorite (103.4 gals of solution)
CERCLA Hazardous Material: yes

SARA Title III, Section 302: Not listed TPQ: N/A
SARA Title III, Section 311/312: Acute Health Hazard
Acute: Yes  Chronic: No  Fire: No  Pressure: No  Reactivity: No

SARA Title III, Section 313: Not subject to Toxic Chemical Release Inventory Reporting

RCRA Hazardous Waste: Not a listed Hazardous Waste. May be a D002 (characteristic corrosive) waste based upon pH value.

EPA Clean Air Act: Not a Listed Hazardous Air Pollutant (HAP)
EPA Clean Water Act: Listed
EPA FIFRA: Registered as a pesticide

Canadian Regulatory Information
WHMIS Category: Class E Corrosive Material
Ingredient Disclosure List: Listed
Domestic Substances List (DSL): Listed

16. Other Information
Label Hazard Warning:

WARNING, HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. CAUSES SUBSTANTIAL, BUT TEMPORARY, EYE INJURY.

Label Precautions: Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. KEEP OUT OF REACH OF CHILDREN.

Label First Aid: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water, for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. SEEK MEDICAL ATTENTION.

Disclaimer & Copyright Notice
This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Sunbelt Chemicals Corp. at the time it was prepared. Sunbelt Chemicals Corp. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, Sunbelt Chemicals Corp. cannot guarantee that these are the only hazards that exist. Sunbelt Chemicals Corp. assumes no legal responsibility for loss, damage or expense arising out of, or in any way connected with, the handling, storage, use or disposal of this product.

1. Identification of the Substance / Preparation and of the Company / Undertaking

Product Name: Vertex 10-15.9% Sodium Hypochlorite
UN/ID No: UN1791
Synonyms: Hypochlorite Solution 10-15.9%, Liquid Bleach
Formula: NaOCl
Molecular Weight: 74.45

Company Name: Vertex Chemical Corporation, 11685 Manchester Road, St. Louis, Missouri 63131. (314) 471-0500

Emergency Telephone:
VERTEX CHEMICAL CORPORATION 314-471-0500
NATIONAL EMERGENCY RESPONSE CENTER: 1-800-424-8802
CHEMTREC (US): 1-800-424-9300
Call CHEMTREC only in the event of chemical emergencies involving a SPILL, LEAK, FIRE, EXPOSURE, or ACCIDENT involving chemicals.

2. Hazards Identification

GHS - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Category 1B</td>
<td>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Category 1</td>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Category 2</td>
<td>Acute aquatic toxicity</td>
</tr>
<tr>
<td>Category 1</td>
<td>Chronic aquatic toxicity</td>
</tr>
</tbody>
</table>

Signal Word: Danger

Hazard Statements:
- Causes severe skin burns and eye damage
- May cause damage to organs
- Very toxic to aquatic life with long lasting effects

Physical Hazards
- None

Corrosive to metals Category 1
Oxidizing liquids Category 2
Precautionary Statements:
• P312 - Call a POISON CENTER or doctor if you feel unwell
• P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
• P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
• P363 - Wash contaminated clothing before reuse
• P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
• P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• P310 - Immediately call a POISON CENTER or doctor/physician
• P280 - Do not breathe dust/fume/gas/mist/vapors/spray
• P264 - Wash face, hands and any exposed skin thoroughly after handling
• P270 - Do not eat, drink or smoke when using this product
• P309 + P311 - IF exposed or if you feel unwell. Call a POISON CENTER or doctor/physician
• P405 - Store locked up
• P501 - Dispose of contents/container to industrial incineration plant
• P273 - Avoid release to the environment
• P501 - Dispose of contents/container to an approved waste disposal plant
• P334 - Immerse in cool water/wrap in wet bandages
• P390 - Absorb spillage to prevent material damage
• P405 - Store in corrosive resistant aluminum container with a resistant inner liner
• P210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• P220 - Keep/Store away from clothing/ combustible materials
• P221 - Take any precaution to avoid mixing with combustibles
• P280 - Wear protective gloves/protective clothing/eye protection/face protection
• P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
• P501 - Dispose of contents/container to industrial incineration plant

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>EC No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>10-16</td>
<td>231-668-3</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>12</td>
<td>231-598-3</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>4</td>
<td>215-185-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>EC No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Balance</td>
<td>231-791-2</td>
</tr>
</tbody>
</table>

4. First Aid Measures

General Advice: Immediate medical attention is required.

Eye Contact: Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact: Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Inhalation: Move to fresh air. Call a physician or poison control center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion: Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Call a physician or poison control center immediately.

Note to Physicians: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.

Self-protection of the First Aider: Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

5. Fire-fighting Measures

Flammable Properties: Not flammable; Highly exothermic reactions with organic materials and oxidizable materials may cause fires in adjacent, heat sensitive materials

Explosive Properties: Containers of this material can explode as oxygen is liberated under high heat or fire conditions. Reacts to form explosive products with amines, ammonia or ammonium salts, methanol, aziridine. Explosive reaction with formic acid (@ 55°C), phenyl acetonitrile, ethylene amine

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment; Water spray may be used to keep fire exposed containers cool

Unsuitable Extinguishing Media: No information available

Specific Hazards Arising from the Chemical: The product causes burns of eyes, skin and mucous membranes; Thermal decomposition can lead to release of irritating and toxic gases and vapors; In the event of fire and/or explosion do not breathe fumes

Protective Equipment and Precautions for Firefighters: In the event of a fire, wear full protective clothing and MSHA/NIOSH (approved or equivalent) self-contained breathing apparatus with full facepiece operated in the pressure-demand or other positive pressure mode

6. Accidental Release Measures

Personal Precautions: Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak.

Environmental Precautions: Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods for Cleaning Up: Soak up with inert absorbent material. Clean contaminated surface thoroughly. Dike far ahead of liquid spill for later disposal. Take up mechanically, placing in appropriate containers for disposal. Prevent product from entering drains. Dam up. After cleaning, flush away traces with water.

Other Information: Not applicable.

7. Handling and Storage
37585 Vertex 10-15.9% Sodium Hypochlorite

Advice on Safe Handling: Use personal protective equipment as required. Use only with adequate ventilation. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems.

Storage Conditions: Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labelled containers.

Incompatible Materials: Strong acids and bases; Oxidizing agents; Ether, ammonia compounds, hydrogen peroxide, all acids, alum, reducing agents, human or animal waste, oxidizable or combustible materials such as wood, cloth or organic materials, organic chemicals such as solvents and solvent based cleaning compounds, fuels and fuel oils, amines, methanol, propane, organic polymers, ethylene glycol, insecticides, heavy metals such as iron, copper, magnesium, aluminum, tin, steel, stainless steel, carbon steel, manganese, zinc, chromium, nickel, cobalt and their alloys, sodium sulfite, sodium bisulfite, sodium hydrosulfite, sodium thiosulfate. Do not mix this product with any of the foregoing or hazardous gases can result.

8. Exposure Controls / Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>Ontario TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td>2 mg/m³ Ceiling</td>
<td>CEV: 2 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>European Union</th>
<th>China</th>
<th>Japan</th>
<th>Korea</th>
<th>Australia</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
<td>2 mg/m³ Peak</td>
<td>TWA: 2 mg/m³</td>
</tr>
</tbody>
</table>

Exposure Guidelines: Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Engineering Controls: Ensure adequate ventilation, especially in confined areas

Personal protective equipment (PPE):
Eye/Face Protection: Tight sealing safety goggles. Face protection shield.
Body Protection: Gloves made of plastic or rubber. Rubber boots. Protective protective clothing. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

General Hygiene Considerations: When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Take off all contaminated clothing and wash it before reuse. Wear suitable gloves and eye/face protection.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State:</td>
<td>Liquid</td>
<td>Odor: Pungent, Chlorine Bleach Odor</td>
</tr>
<tr>
<td>Appearance:</td>
<td>Aqueous solution</td>
<td>Odor Threshold: No information available</td>
</tr>
<tr>
<td>Color:</td>
<td>Clear Yellow</td>
<td>Remarks • Method: No information available</td>
</tr>
<tr>
<td>pH:</td>
<td>13.2</td>
<td>Remarks • Method: No information available</td>
</tr>
<tr>
<td>&quot;Salt Out&quot; Point (°F):</td>
<td>107 °C / 225 °F</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Freezeing Point:</td>
<td>-29 °C / -20 °F</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Boiling Range:</td>
<td>107 °C / 225 °F</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash Point:</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate (BuAc=1):</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas):</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limits in Air: Upper Flammability Limit:</td>
<td></td>
<td>No information available</td>
</tr>
</tbody>
</table>
Lower Flammability Limit:  
Vapor Pressure (mm Hg): 75.2 @55 °C  
Vapor density (Air =1): 1.263  
Specific Gravity (H₂O=1): No information available  
Specific Gravity (2nd value): No information available  
Water Solubility: 100% soluble in water  
Solubility(ies): No information available  
Partition Coefficient (n-octanol/water): No information available  
Autoignition Temperature: No information available  
Decomposition Temperature: No information available  
Kinematic Viscosity: 2.65 Centistokes  
Dynamic Viscosity: No information available  
Oxidizing Properties: Containers of this material can explode as oxygen is liberated under high heat or fire conditions. Reacts to form explosive products with amines, ammonia or ammonium salts, methanol, aziridine. Explosive reaction with formic acid (@ 55°C), phenyl acetonitrile, ethylene amine  
Explosive Properties: No information available

9.2. Other Information  
Softening Point: No information available  
Molecular Weight: 74.45  
VOC Content(%): No information available  
Density: No information available  
Bulk Density: No information available

10. Stability and Reactivity  
Stability: Stable under normal conditions of use and storage; Stability decreases with increased concentration, heat, light exposure, decrease in pH and contamination with heavy metals such as nickel, cobalt, copper and iron  
Conditions to Avoid: Exposure to air or moisture over prolonged periods; Excessive heat, exposure to light, reduced alkalinity, and contamination of any kind. Reduced alkalinity or contamination can result in evolution of chlorine (toxic) gas. Decrease in pH such as by mixing with other than water, and contamination with items mentioned below as incompatible can result in evolution of chlorine (toxic) gas  
Incompatible Materials: Strong acids and bases; Oxidizing agents; Ether, ammonia compounds, hydrogen peroxide, all acids, alum, reducing agents, human or animal waste, oxidizable or combustible materials such as wood, cloth or organic materials, organic chemicals such as solvents and solvent based cleaning compounds, fuels and fuel oils, amines, methanol, propane, organic polymers, ethylene glycol, insecticides, heavy metals such as iron, copper, magnesium, aluminum, tin, steel, stainless steel, carbon steel, manganese, zinc, chromium, nickel, cobalt and their alloys, sodium sulfite, sodium bisulfite, sodium hydroxysulfite, sodium thiosulfate. Do not mix this product with any of the foregoing or hazardous gases can result  
Hazardous Decomposition Products: Thermal decomposition can lead to release of irritating and toxic gases and vapors  
Possibility of Hazardous Reactions: None under normal processing

11. Toxicological Information

Product Information

Acute Toxicity: 0% of the mixture consists of ingredient(s) of unknown toxicity.
37585 Vertex 10-15.9% Sodium Hypochlorite

The following values are calculated based on chapter 3.1 of the GHS document

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD₅₀</th>
<th>Dermal LD₅₀</th>
<th>LC₅₀ (Lethal Concentration):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>8200 mg/kg (Rat)</td>
<td>10000 mg/kg (Rabbit)</td>
<td>42 g/m³ (Rat) 1 h</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>3 g/kg (Rat)</td>
<td>10 g/kg (Rabbit)</td>
<td></td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>90 mL/kg (Rat)</td>
<td>1350 mg/kg (Rabbit)</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chronic Toxicity:

Carcinogenicity: This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>IARC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>Group 3</td>
</tr>
<tr>
<td></td>
<td>Not classifiable as a human carcinogen</td>
</tr>
</tbody>
</table>

Target Organ Effects: Eyes, Respiratory system, Skin

12. Ecological Information

Ecotoxicity

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Very toxic to aquatic life with long lasting effects

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>0.095: 24 h Skeletonema costatum mg/L EC₅₀</td>
<td>0.06 - 0.11: 96 h Pimephales promelas mg/L LC₅₀ flow-through 4.5 - 7.6: 96 h Pimephales promelas mg/L LC₅₀ static 0.4 - 0.8: 96 h Lepomis macrochirus mg/L LC₅₀ static 0.28 - 0.58: 96 h Lepomis macrochirus mg/L LC₅₀ flow-through 0.05 - 0.771: 96 h Oncorhyncus mykiss mg/L LC₅₀ flow-through 0.03 - 0.19: 96 h Oncorhyncus mykiss mg/L LC₅₀ semi-static 0.18 - 0.22: 96 h Oncorhyncus mykiss mg/L LC₅₀ static</td>
<td>2.1: 96 h Daphnia magna mg/L EC₅₀ 0.033 - 0.044: 48 h Daphnia magna mg/L EC₅₀ Static</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>5560 - 6080: 96 h Lepomis macrochirus mg/L LC₅₀ flow-through 6020 - 7070: 96 h Pimephales promelas mg/L LC₅₀ static 12946: 96 h Lepomis macrochirus mg/L LC₅₀ static 7050: 96 h Pimephales promelas mg/L LC₅₀ semi-static 6420 - 6700: 96 h Pimephales promelas mg/L LC₅₀ static 4747 - 7824: 96 h Oncorhyncus mykiss mg/L LC₅₀ flow-through</td>
<td></td>
<td>1000: 48 h Daphnia magna mg/L EC₅₀ 340.7 - 469.2: 48 h Daphnia magna mg/L EC₅₀ Static</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>45.4: 96 h Oncorhyncus mykiss mg/L LC₅₀ static</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability: No information available.
Bioaccumulation: No information available.
Mobility: No information available.

**13. Disposal Considerations**

Waste from Residues/Unused Products: Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging: Do not reuse container.

**14. Transport Information**

**DOT**
Proper shipping name: HYPOCHLORITE SOLUTIONS (SODIUM HYPOCHLORITE)
Hazard Class: 8
UN/ID No: UN1791
Packing Group: PG III
Description: UN1791, HYPOCHLORITE SOLUTIONS (SODIUM HYPOCHLORITE), 8, PG III

![CORROSIVE 8]

**15. Regulatory Information**

**International Inventories**
All of the components in the product are on the following inventory lists: TSCA (United States), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), South Korea (KECL), China (IECSC), Philippines (PICCS).
This product contains a substance not listed on international inventories - it is for research and development use only.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>AICS</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>-</td>
<td>(1)-237</td>
<td>Listed</td>
<td>KE-31506</td>
<td>Present</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>-</td>
<td>(1)-236</td>
<td>Listed</td>
<td>KE-31387</td>
<td>Present</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>-</td>
<td>(2)-1972</td>
<td>Listed</td>
<td>KE-31487</td>
<td>Listed</td>
</tr>
<tr>
<td>Water</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
<td>-</td>
<td>-</td>
<td>Listed</td>
<td>KE-35400</td>
<td>Present</td>
</tr>
</tbody>
</table>

**Inventory Legend**
AICS - Australian Inventory of Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
37585 Vertex 10-15.9% Sodium Hypochlorite

ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

RESTRICTIONS - REACH TITLE VII  No information available

US Federal Regulations

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CERCLA Hazardous Substances and the Reportable Quantities</th>
<th>SARA Extremely Hazardous Substances EPCRA RQ</th>
<th>SARA Extremely Hazardous Substances TPQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>100 lb, 45.4 kg</td>
<td>100 lb</td>
<td>-</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>1000 lb, 454 kg</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories
Acute health hazard  Yes
Chronic health hazard Yes
Fire hazard  No
Sudden release of pressure hazard  No
Reactive hazard  No

U.S. State Right-to-Know Regulations

California Proposition 65:
This product does not contain any Proposition 65 chemicals

16. Other Information

National Fire Protection Association (NFPA) Ratings

Prepared By: HSE Department
37585 Vertex 10-15.9% Sodium Hypochlorite

Issue Date: 22-Oct-2012
Revision Date: 15-Nov-2012
Revision Note: MSDS converted to GHS SDS Format.

Disclaimer:
Vertex Chemical Corporation (“Vertex”) expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Vertex makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Vertex’s control, and, therefore, users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes, and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

End of Safety Data Sheet
1. IDENTIFICATION

Product identifier
Product Name Shock Chlorinating Liquid for Pools & Spas

Other means of identification
Product UPC 70338-12222
Product Code 11005655392
UN/ID no. 1791

Recommended use of the chemical and restrictions on use
Recommended Use Disinfectant.
Uses advised against Do not mix with other chemicals

Details of the supplier of the safety data sheet
Manufacturer Address KIK International LLC
33 Macintosh Blvd.
Concord, Ontario
Canada L4K 4L5
1-800-479-6603

Emergency telephone number
Emergency Telephone Poison Control Center (Medical) : (866) 366-5048
Chemtel (Transportation) 1-888-255-3924

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Corrosive to metals</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label elements

Emergency Overview

Danger

Hazard statements
Causes severe skin burns and eye damage
May be corrosive to metals

Color light yellow
Physical state liquid
Odor Chlorine
Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
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 or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Absorb spillage to prevent material damage

Precautionary Statements - Storage
Store locked up. Keep out of reach of children. Store in corrosive resistant plastic container with a resistant inner liner. Store in a well-ventilated place. Store in a closed container. Protect from sunlight.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>9-12*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact
Wash skin with soap and water. If symptoms persist, call a physician.

Inhalation
Remove to fresh air.

Ingestion
Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Symptoms
No information available.

Indication of any immediate medical attention and special treatment needed
Note to physicians

Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
No information available.

Specific hazards arising from the chemical
The product causes burns of eyes, skin and mucous membranes.

Explosion data

Sensitivity to Mechanical Impact: None.
Sensitivity to Static Discharge: None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas.

Environmental precautions
See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials
Acids, Ammonia, Aluminum, Steel.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls
Engineering Controls

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>clear, light yellow</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>light yellow</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Chlorine</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>~12.5</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>~1.1</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
None under normal processing.

**Conditions to avoid**
Do not mix with other chemicals. Extremes of temperature and direct sunlight.

**Incompatible materials**
Acids, Ammonia, Aluminum, Steel.

**Hazardous Decomposition Products**
None known based on information supplied.

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

- **Inhalation**
  Inhalation of vapors in high concentration may cause irritation of respiratory system.

- **Eye contact**
  Avoid contact with eyes. May cause burns.

- **Skin contact**
  Avoid contact with skin. May cause burns.

- **Ingestion**
  May be harmful if swallowed.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>= 8200 mg/kg (Rat)</td>
<td>&gt; 10000 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Chemical Name**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>-</td>
<td>Group 3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**IARC** (International Agency for Research on Cancer)
Not classifiable as a human carcinogen

**Reproductive toxicity**
No information available.

**STOT - single exposure**
No information available.

**STOT - repeated exposure**
No information available.

**Aspiration hazard**
No information available.

**Numerical measures of toxicity - Product Information**

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Very toxic to aquatic life with long lasting effects

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite 7681-52-9</td>
<td>0.095: 24 h Skeletonema costatum mg/L EC50</td>
<td>0.06 - 0.11: 96 h Pimephales promelas mg/L LC50 flow-through 4.5 - 7.6; 96 h Pimephales promelas mg/L LC50 static 0.4 - 0.8: 96 h Lepomis macrochirus mg/L LC50</td>
<td>0.033 - 0.044: 48 h Daphnia magna mg/L EC50 Static 2.1: 96 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>
Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility
No information available.

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated packaging
Do not reuse container. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

Note: Limited quantity (LQ) exception is possible

DOT

| UN/ID no. | 1791 |
| Proper shipping name | HYPOCHLORITE SOLUTION |
| Hazard Class | 8 |
| Packing Group | III |
| Description | UN1791, HYPOCHLORITE SOLUTION, 8, III |

IATA

| UN/ID no. | 1791 |
| Proper shipping name | HYPOCHLORITE SOLUTION |
| Hazard Class | 8 |
| Packing Group | III |
| Description | UN1791, HYPOCHLORITE SOLUTION, 8, III |

IMDG

| UN/ID no. | 1791 |
| Proper shipping name | HYPOCHLORITE SOLUTION |
| Hazard Class | 8 |
| Packing Group | III |
| Description | UN1791, HYPOCHLORITE SOLUTION, 8, III |
| Marine pollutant | This material meets the definition of a marine pollutant |
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite 7681-52-9</td>
<td>100 lb</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite 7681-52-9</td>
<td>100 lb</td>
<td>-</td>
<td>RQ 100 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 45.4 kg final RQ</td>
</tr>
</tbody>
</table>

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite 7681-52-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number 70271-10

EPA Statement
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label
DANGER: Corrosive, may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.
16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>B</td>
</tr>
</tbody>
</table>

Prepared By: Regulatory Affairs  
Revision Date: 02-May-2015  
Revision Note: No information available  
Disclaimer: The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet
1. Identification

Product identifier: SODIUM HYPOCHLORITE 10.5%

Other means of identification: None.

Recommended use: ALL PROPER AND LEGAL PURPOSES

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name: Brenntag Mid-South, Inc.
Address: 1405 Highway 136, West
Henderson, KY 42420
Telephone: 270-830-1222
E-mail: Not available.
Emergency phone number: 800-424-9300 CHEMTREC

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Skin corrosion/irritation Category 1
- Serious eye damage/eye irritation Category 1

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard Category 1
- Hazardous to the aquatic environment, long-term hazard Category 1

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention: Do not breathe mist or vapor. Wash thoroughly after handling. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves/protective clothing/eye protection/face protection.

Response: If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. Wash contaminated clothing before reuse. Collect spillage.

Storage: Store locked up.

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

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: 12.45% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 12.45% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures
<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPOCHLOROUS ACID, SODIUM SALT (1:1)</td>
<td></td>
<td>7681-52-9</td>
<td>12.8</td>
</tr>
<tr>
<td>SODIUM CHLORIDE (NaCl)</td>
<td></td>
<td>7647-14-5</td>
<td>11.95</td>
</tr>
<tr>
<td>SODIUM HYDROXIDE (Na(OH))</td>
<td></td>
<td>1310-73-2</td>
<td>1.05</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>74.2</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

**Ingestion**
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

**Most important symptoms/effects, acute and delayed**
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

**General information**
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

**Suitable extinguishing media**
Powder. Foam. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

**Environmental precautions**
Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.
7. Handling and storage

Precautions for safe handling:
Provide adequate ventilation. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities:
Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US, OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)</td>
<td>PEL</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US, ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US, NIOSH: Pocket Guide to Chemical Hazards Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US, Workplace Environmental Exposure Level (WEEL) Guides Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)</td>
<td>STEL</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values:
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls:
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment:

Eye/face protection:
Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection:
Hand protection:
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other:
Wear appropriate chemical resistant clothing.

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards:
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations:
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance:
Physical state: Liquid.
Form: Liquid.
Color: CLEAR, LIGHT YELLOW-GREEN
Odor: CHLORINE
Odor threshold: Not available.

pH: Not available.

Melting point/freezing point: 1410.21 °F (765.67 °C) estimated / -20 °F (-28.89 °C)
Initial boiling point and boiling range: 578.73 °F (303.74 °C) estimated
Flash point: 999.0 °F (537.2 °C)
Evaporation rate: Not available.
Flammability (solid, gas): Not applicable.
Upper/lower flammability or explosive limits:
   Flammability limit - lower (%): Not available.
   Flammability limit - upper (%): Not available.
   Explosive limit - lower (%): Not available.
   Explosive limit - upper (%): Not available.
Vapor pressure: 0.09 hPa estimated
Vapor density: Not available.
Relative density: Not available.
Solubility(ies):
   Solubility (water): Not available.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.
Other information:
   Density: 14.23 lbs/gal estimated
   Explosive properties: Not explosive.
   Flammability class: Combustible IIIB estimated
   Oxidizing properties: Not oxidizing.
   Percent volatile: 73.7 % estimated
   Specific gravity: 1.71 estimated

10. Stability and reactivity
Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Contact with incompatible materials.
Incompatible materials: Strong acids.
Hazardous decomposition products: No hazardous decomposition products are known.

11. Toxicological information
Information on likely routes of exposure:
   Inhalation: May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
   Skin contact: Causes severe skin burns.
   Eye contact: Causes serious eye damage.
   Ingestion: Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics:
   Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Information on toxicological effects
Acute toxicity
<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Mouse</td>
<td>5800 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>8.91 g/kg</td>
</tr>
<tr>
<td>SODIUM CHLORIDE (NACL) (CAS 7647-14-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Mouse</td>
<td>4000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>3000 mg/kg</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

- **Skin corrosion/irritation**: Causes severe skin burns and eye damage.
- **Serious eye damage/eye irritation**: Causes serious eye damage.
- **Respiratory or skin sensitization**: Not a respiratory sensitizer.
- **Germ cell mutagenicity**: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
- **Carcinogenicity**: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.


- **Reproductive toxicity**: This product is not expected to cause reproductive or developmental effects.
- **Specific target organ toxicity - single exposure**: Not classified.
- **Specific target organ toxicity - repeated exposure**: Not classified.
- **Aspiration hazard**: Not an aspiration hazard.
- **Chronic effects**: Prolonged inhalation may be harmful.

### 12. Ecological information

**Ecotoxicity**: Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Chinook salmon (Oncorhynchus tshawytscha)</td>
</tr>
<tr>
<td>SODIUM CHLORIDE (NACL) (CAS 7647-14-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fathead minnow (Pimephales promelas)</td>
</tr>
<tr>
<td>SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Ceriodaphnia dubia)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Western mosquito fish (Gambusia affinis)</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

**Persistence and degradability**: No data is available on the degradability of this product.

**Bioaccumulative potential**: No data available.

**Mobility in soil**: No data available.
Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
UN number
UN1791
UN proper shipping name
HYPOCHLORITE SOLUTIONS
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
ERG number
154
DOT information on packaging may be different from that listed.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
HYPOCHLOROUS ACID. SODIUM SALT (1:1) (CAS 7681-52-9) Listed.
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No
SARA 302 Extremely hazardous substance
Not listed.
SARA 311/312 Hazardous chemical
SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)
Not listed.
US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)
US. Massachusetts RTK - Substance List
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)
US. New Jersey Worker and Community Right-to-Know Act
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)
US. Pennsylvania Worker and Community Right-to-Know Law
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)
US. Rhode Island RTK
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)
SODIUM HYDROXIDE (NA(OH)) (CAS 1310-73-2)
US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision
Issue date          05-07-2015
Revision date        05-22-2015
Version #

03

HMIS® ratings

Health: 3
Flammability: 0
Physical hazard: 0

NFPA ratings

Health: 3
Flammability: 0
Instability: 0

Disclaimer

BNA cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.