1. Identification

Product identifier
Sodium Hypochlorite Solution, 10-16%

Other means of identification
SDS number 502-USA-OLN
Synonyms Tri-Lite® 100, Tri-lite® 150, Tri-lite® 160, Tri-Lite® 200, Sodium Hypochlorite 12.5%, Bleach, Hypochlorite solution, Liquid bleach, Soda bleach solution, Sodium Hypochlorite 10%

Recommended use

Recommended restrictions
None known.

Manufacturer/Importer/Supplier/Distributor information
Company name Oltrin Solutions, LLC
Address PO Box 1195
11 E.V. Hogan Drive
Hamlet, NC 28345-1195

Telephone 910-410-1180
E-mail oltrincs@trinitymfg.com

Emergency phone number CHEMTREC (US/Canada) 1-800-424-9300
CHEMTREC (International) +1 703-527-3887 (collect calls accepted)

2. Hazard(s) identification

Physical hazards
Corrosive to metals Category 1

Health hazards
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Specific target organ toxicity, single exposure Category 3 (respiratory tract irritation)

Environmental hazards
Hazardous to the aquatic environment, acute hazard Category 1
Hazardous to the aquatic environment, long-term hazard Category 2

OSHA defined hazards
Not classified.

Label elements

Signal word DANGER

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation. Toxic to aquatic life with long lasting effects.

Precautionary statement
Prevention Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Keep only in original container. Avoid release to the environment.

Response IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IN INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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. Absorb/collect spillage to prevent material damage.

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

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>10 - 16</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>0.2 - 1.0</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Balance</td>
</tr>
</tbody>
</table>

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. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately. Wash contaminated clothing before reuse. Call a physician or poison control center immediately.

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. Get medical attention 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
Corrosive effects. 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
Treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. With eye exposure, continue flushing during transport to hospital.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire. Do not use dry extinguishing media that contains ammonium compounds.

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
In case of fire and/or explosion do not breathe fumes. 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. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Absorb spillage to prevent material damage. 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. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. 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
Do not discharge into drains, water courses or onto the ground. Environmental manager must be informed of all major releases. See Section 14 for RQ reporting information.
7. Handling and storage

Precautions for safe handling
Wear appropriate personal protective equipment. Do not get in eyes, on skin, on clothing. Use with adequate ventilation. Observe good industrial hygiene practices. Do not apply heat or direct sunlight. Temperature and product concentration affect product quality and decomposition rates.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in a corrosive resistant container. Consult container manufacturer for additional guidance. Store away from and do not mix with incompatible materials such as acids, oxidizers, organics, reducing agents, and all metals except titanium.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>PEL</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
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<th>Components</th>
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<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
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</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
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US. Workplace Environmental Exposure Level (WEEL) Guides

<table>
<thead>
<tr>
<th>Components</th>
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<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hypochlorite (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. Wear a full-face respirator, if needed.

Skin protection

Hand protection
Wear appropriate chemical resistant gloves.

Other
Wear appropriate chemical resistant clothing. Reports indicate that sodium hypochlorite can react with various fabrics usually increasing with concentration. Reactions vary significantly depending on strength of chemical, material, fabric treatment and color of dyes. FRC treated cotton has a stronger response than plain cotton. Poly blend fabrics and meta aramid fabric have a weaker response than natural fibers. Contact the Personal Protective Equipment manufacturer for specific information about their products.

Respiratory protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

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
Clear.

Physical state
Liquid.

Form
Liquid.

Color
Pale yellow - Straw colored
Odor
Chlorine-like.

Odor threshold
0.9 mg/m³

pH
13

Melting point/freezing point
-17 °F (-27.22 °C)

Initial boiling point and boiling range
231.8 °F (111 °C)

Flash point
Not relevant.

Evaporation rate
Not available.

Flammability (solid, gas)
Not available.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%)
  Not relevant.
- Flammability limit - upper (%)
  Not relevant.
- Explosive limit - lower (%)
  Not relevant.
- Explosive limit - upper (%)
  Not relevant.

Vapor pressure
12 mmHg @ 20 °C (68 °F) for 12.5 % by weight solution

Vapor density
Not available.

Relative density
1.163 @ 15.5 °C (60 °F) (Weight % Available Chlorine = 10.34)
1.203 @ 15.5 °C (60 °F) (Weight % Available Chlorine = 12.52)
1.216 @ 15.5 °C (60 °F) (Weight % Available Chlorine = 13.19)
1.255 @ 15.5 °C (60 °F) (Weight % Available Chlorine = 15.14)

Solubility(ies)
Solubility (water)
100 %

Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.

Decomposition temperature
Not available.

Viscosity
Not available.

Other information
Bulk density
1.16 - 1.25 g/cm³
9.7 lb/gal @ 15.5 °C (60 °F) (Weight % Available Chlorine = 10.34)
10.03 lb/gal @ 15.5 °C (60 °F) (Weight % Available Chlorine = 12.52)
10.14 lb/gal @ 15.5 °C (60 °F) (Weight % Available Chlorine = 13.19)
10.46 lb/gal @ 15.5 °C (60 °F) (Weight % Available Chlorine = 15.14)

Molecular formula
NaOCl

Molecular weight
74.5 g/mol

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. Avoid ultraviolet (UV) light sources. Excessive heat. Reacts violently with strong acids. Acid contact will produce chlorine gas. Amine contact will produce chloramines.

Incompatible materials

Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information
Information on likely routes of exposure
Inhalation
Vapors and spray mist may irritate throat and respiratory system and cause coughing.
Skin contact
Causes skin burns.

Eye contact
Causes eye burns.

Ingestion
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

Symptoms related to the physical, chemical and toxicological characteristics
Corrosive effects. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological characteristics

Acute toxicity
Occupational exposure to the substance or mixture may cause adverse effects.

Product | Species | Test Results
--- | --- | ---
Sodium Hypochlorite Solution, 10-16% (CAS Mixture) | | 
**Acute** | | 
Dermal, LD50 | Rabbit | 3000 - 10000 mg/kg
Oral, LD50 | Rat | 8200 mg/kg

Skin corrosion/irritation
Causes severe skin burns and eye damage.

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization
Not classified.

Skin sensitization
Not classified.

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.

IARC Monographs. Overall Evaluation of Carcinogenicity
Sodium hypochlorite (CAS 7681-52-9) 3 Not classifiable as to carcinogenicity to humans.

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

Reproductive toxicity
Not classified.

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not classified, however droplets of the product may be aspirated into the lungs through ingestion or vomiting and may cause a serious chemical pneumonia.

Chronic effects
Prolonged or repeated overexposure causes lung damage.

Further information
Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity
Toxic to aquatic life with long lasting effects. Low in toxicity to avian wildlife.

Product | Species | Test Results
--- | --- | ---
Sodium Hypochlorite Solution, 10-16% | | 
**Aquatic** | | 
Crustacea | EC50 | Daphnia magna | 0.033 - 0.044 mg/l, 48 Hours
LC50 | Daphnia magna | 2.1 mg/l, 96 Hours
Fish | LC50 | Bluegill (Lepomis macrochirus) | 0.6 mg/l, 48 Hours

Persistence and degradability
The product contains inorganic compounds which are not biodegradable. Degrades slowly to sodium chloride, sodium chlorate and oxygen.

Bioaccumulative potential
The product is not expected to bioaccumulate.

Mobility in soil
No data available.

Other adverse effects
None known.
13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. 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.

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

14. Transport information

DOT

UN number UN1791
UN proper shipping name Hypochlorite solutions
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group III
Environmental hazards
Marine pollutant Yes (Sodium hypochlorite solution)
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions IB3, N34, T4, TP2, TP24
Packaging non bulk / bulk 154
Packaging exceptions 203 / 241
RQ 100 lbs. (Sodium Hypochlorite) For gallons of product equivalent to 100 lbs of available sodium hypochlorite, use the following: 98.7 gallons 10% by weight product, 75.9 gallons for 12.5% by weight, 72.5 gallons for 13% by weight, 60.8 gallons for 15% by weight.

IATA

UN number UN1791
UN proper shipping name Hypochlorite solution
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards Yes
ERG Code 8L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1791
UN proper shipping name HYPOCHLORITE SOLUTION
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-A, S-B
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
15. Regulatory information

**US federal regulations**

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

All components are on the U.S. EPA TSCA Inventory List.

- **TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**
  - Not regulated.
  - Not listed.
- **CERCLA Hazardous Substance List (40 CFR 302.4)**
  - Sodium hydroxide (CAS 1310-73-2) LISTED
  - Sodium hypochlorite (CAS 7681-52-9) 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**
  - Yes
- **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. Massachusetts RTK - Substance List**
  - Sodium hydroxide (CAS 1310-73-2)
  - Sodium hypochlorite (CAS 7681-52-9)
- **US. New Jersey Worker and Community Right-to-Know Act**
  - Sodium hydroxide (CAS 1310-73-2)
  - Sodium hypochlorite (CAS 7681-52-9)
- **US. Pennsylvania Worker and Community Right-to-Know Law**
  - Sodium hydroxide (CAS 1310-73-2)
  - Sodium hypochlorite (CAS 7681-52-9)
- **US. Rhode Island RTK**
  - Sodium hydroxide (CAS 1310-73-2)
  - Sodium hypochlorite (CAS 7681-52-9)
- **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**

Sodium Hypochlorite Solution, 10-16%

Version #: 04  Revision date:  21-August-2015

7 / 8
<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 (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
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<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>No Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
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<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
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<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>
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<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 this product complies 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          1-January-2015
Revision date        21-August-2015
Version #            04

Revision History
02-17-15             Section 14  Added information for RQ calculation
03-10-15             Section 14  Added “solution” to name of Marine Pollutant for US DOT transport information
08-21-15             Section 2  Added missing hazard statement “Causes severe skin burns and eye damage”

Further information
NFPA Hazard Scale: 0 = Minimal    1 = Slight    2 = Moderate    3 = Serious    4 = Severe

NFPA ratings

List of abbreviations
LD50: Lethal Dose, 50%.
LC50: Lethal Concentration, 50%.
EC50: Effective concentration, 50%.
TWA: Time weighted average.

References
EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
US. IARC Monographs on Occupational Exposures to Chemical Agents
IARC Monographs. Overall Evaluation of Carcinogenicity
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices (2009)

Disclaimer
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