# Material Safety Data Sheet

**Triphosgene MSDS**

## Section 1: Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name: Triphosgene</th>
<th>Contact Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog Codes: 11880</td>
<td>Finar Limited</td>
</tr>
<tr>
<td>CAS#: 32315-10-9</td>
<td>184-186/P, Chacharwadi Vasna,</td>
</tr>
<tr>
<td>RTECS: Not available.</td>
<td>Sarkhej-Bavla Highway,</td>
</tr>
<tr>
<td>TSCA: Not available.</td>
<td>Ta.: Sanand, Dist.: Ahmedabad,</td>
</tr>
<tr>
<td>Synonym: Bis(trichloromethyl)carbonate.</td>
<td>Email: <a href="mailto:info@finarchemicals.com">info@finarchemicals.com</a></td>
</tr>
<tr>
<td>Chemical Formula: C3Cl6O3</td>
<td>Web: <a href="http://www.finarchemicals.com">www.finarchemicals.com</a></td>
</tr>
</tbody>
</table>

## Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Composition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>CAS #</td>
</tr>
<tr>
<td>Triphosgene</td>
<td>32315-10-9</td>
</tr>
</tbody>
</table>

## Section 3: Hazards Identification

### Emergency Overview

Appearance: white crystals.

**Danger!**

May be fatal if inhaled. Causes burns by all exposure routes. Water-reactive. Contact with water liberates toxic gas. Can decompose violently at elevated temperatures. Lachrymator (substance which increases the flow of tears).

**Target Organs:**

Respiratory system, gastrointestinal system, eyes, skin.

### Potential Health Effects

**Eye:**

Causes eye burns. Lachrymator (substance which increases the flow of tears).

**Skin:**

Causes skin burns. May be harmful if absorbed through the skin.

**Ingestion:**

Causes gastrointestinal tract burns. May be harmful if swallowed.

**Inhalation:**

May be fatal if inhaled. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. One of the decomposition products is phosgene whose main toxicity is primarily by inhalation. The major target organ is the lung. The major pathological feature is delayed pulmonary edema. Signs and symptoms of toxicity may be delayed for 24 hours.

**Chronic:**

No information found. Chronic exposure to phosgene compounds may cause irreversible pulmonary fibrosis and...
Section 4: First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin:
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:
Do not induce vomiting. Get medical aid immediately. Call a poison control center.

Inhalation:
Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. SPEED IS ESSENTIAL, OBTAIN MEDICAL AID IMMEDIATELY. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician:
Treat symptomatically and supportively.

Section 5: Fire and Explosion Data

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Exposure to heat may promote violent decomposition. Water reactive. Material will react with water and may release a flammable and/or toxic gas.

Extinguishing Media:
Use foam, dry chemical, or carbon dioxide. DO NOT USE WATER!

Flash Point:
Not applicable.

Autoignition Temperature:
Not applicable.

Explosion Limits, Lower:
Not available.

Explosion Limits, Upper:
Not available.

NFPA Rating:
(estimated) Health: 4; Flammability: 1; Instability: 2; Special Hazard: -W-

Section 6: Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Provide ventilation. Do not expose spill to water. Do not get water inside containers. Evacuate unnecessary personnel. Do not let this chemical enter the environment.

Section 7: Handling and Storage

Handling:
Do not allow water to get into the container because of violent reaction. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use and store under nitrogen. Do not allow contact with water. Use only in a chemical fume hood.

Storage:

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riphosgene</td>
<td>None listed</td>
<td>None listed</td>
<td>None listed</td>
</tr>
</tbody>
</table>
OSHA Vacated PELs: Triphosgene: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Crystals</td>
</tr>
<tr>
<td>Appearance</td>
<td>white</td>
</tr>
<tr>
<td>Odor</td>
<td>none reported</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>16 mbar @ 90 deg C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>203 - 206 deg C @ 760 mmHg</td>
</tr>
<tr>
<td>Freezing/Melting Point</td>
<td>77 - 81 deg C</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.780</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C3Cl6O3</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>296.75</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity Data

Chemical Stability:
Moisture sensitive. Can decompose violently at elevated temperatures. Reacts with water. Heat sensitive

Conditions to Avoid:
Incompatible materials, dust generation, exposure to moist air or water, heat.

Incompatibilities with Other Materials:
Strong oxidizing agents, strong bases, acids, amines, iron oxide, activated carbon.

Hazardous Decomposition Products:
Hydrogen chloride, chlorine, phosgene, carbon monoxide, oxides of phosphorus, carbon dioxide.

Hazardous Polymerization:
Has not been reported.

Section 11: Toxicological Information

RTECS#:
CAS# 32315-10-9 unlisted.

LD50/LC50:
Not available.

Carcinogenicity:
CAS# 32315-10-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found
Section 12: Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: No information available.
Physical: No information available.
Other: Do not empty into drains.

Section 13: Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14: Transport Information

<table>
<thead>
<tr>
<th></th>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Name:</td>
<td>TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.</td>
<td>TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.</td>
</tr>
<tr>
<td>Hazard Class:</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN2928</td>
<td>UN2928</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>I</td>
<td>I</td>
</tr>
</tbody>
</table>

Section 15: Other Regulatory Information

US FEDERAL
TSCA
CAS# 32315-10-9 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
CAS# 32315-10-9: Section 5, 1 % de minimus concentration

TSCA Significant New Use Rule
CAS# 32315-10-9: This product is for research and development use only. It is subject to a SNUR which has specific requirements and restrictions. The specific citation for this product is 4040 CFR 721.4880 (PMN P-90-1535).

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

Section 313
No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 32315-10-9 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: T+
Risk Phrases:
- R 26 Very toxic by inhalation.
- R 29 Contact with water liberates toxic gas.
- R 34 Causes burns.

Safety Phrases:
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)
- CAS# 32315-10-9: No information available.

Canada - DSL/NDSL
- None of the chemicals in this product are listed on the DSL or NDSL list.

Canada - WHMIS
- This product has a WHMIS classification of D1A, E, F.
- This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/06/2010

Last Updated: 24/11/2012

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