MATERIAL SAFETY DATA SHEET
CINNAMOYL CHLORIDE

1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Cinnamoyl chloride
Synonyms: 3-Phenyl-2-propenoyl chloride
Company Identification: Sisco Research Laboratories Pvt. Ltd.
Andheri (East), Mumbai – 400 099.
Tel: +91 22 2687 2601
Fax: +91 22 2687 8241
Website: www.srlchem.com

2 - COMPOSITION, INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name:</th>
<th>%</th>
<th>EINECS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>102-92-1</td>
<td>Cinnamoyl chloride</td>
<td>98%</td>
<td>203-065-5</td>
</tr>
</tbody>
</table>

3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Reacts violently with water. Contact with water liberates toxic gas. Causes burns.
Harmful by inhalation.

Potential Health Effects
Eye: Causes eye burns.
Skin: Causes skin burns.
Ingestion: Causes gastrointestinal tract burns.
Inhalation: Harmful if inhaled. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. 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.

Chronic:

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.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.

5 - FIRE FIGHTING MEASURES

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

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

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). Do not expose spill to water. Do not let this chemical enter the environment.

7 – HANDLING AND STORAGE

Handling: Do not allow water to get into the container because of violent reaction. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Handle under an inert atmosphere. Use only in a chemical fume hood.


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

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

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.

9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point:</td>
<td>33 - 36 deg C</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>C₉H₇ClO</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>166.61</td>
</tr>
</tbody>
</table>

10 - STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Chemical Stability:</th>
<th>Hygroscopic: absorbs moisture or water from the air.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions to Avoid:</td>
<td>Incompatible materials, exposure to moist air or water.</td>
</tr>
<tr>
<td>Incompatibilities with Other Materials :</td>
<td>Strong oxidizing agents, strong oxidizing agents, strong bases, alcohols.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products :</td>
<td>Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.</td>
</tr>
<tr>
<td>Hazardous Polymerization :</td>
<td>Has not been reported.</td>
</tr>
</tbody>
</table>

11 - TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>RTECS#:</th>
<th>CAS# 102-92-1: None listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50/LC50:</td>
<td>RTECS: Not available.</td>
</tr>
<tr>
<td>Carcinogenicity:</td>
<td>Cinnamoyl chloride - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.</td>
</tr>
<tr>
<td>Other:</td>
<td>The toxicological properties have not been fully investigated.</td>
</tr>
</tbody>
</table>

12 - ECOLOGICAL INFORMATION

Not available

13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

14 - TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>IATA</th>
<th>IMO</th>
<th>RID/ADR</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8</td>
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</tr>
<tr>
<td>UN Number:</td>
<td>3261</td>
<td>3261</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>II</td>
<td>II</td>
</tr>
</tbody>
</table>

15 - REGULATORY INFORMATION

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols: C
Safety Phrases: S 8 Keep container dry. S 23 Do not inhale gas/fumes/vapour/spray. S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 30 Never add water to this product. 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).

WGK (Water Danger/Protection) CAS# 102-92-1: Not available
Canada CAS# 102-92-1 is listed on Canada's DSL List
US Federal TSCA CAS# 102-92-1 is listed on the TSCA Inventory.

16 - ADDITIONAL INFORMATION

SISCO RESEARCH LABORATORIES provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.