MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION AND GENERAL INFORMATION
   Part Number: 770040, 770046, and 770047
   Nomenclature: Irritant Smoke
   Company Name: Honeywell Safety Products
   Address: 900 Douglass Pike
   Smithfield, RI 02917
   800-873-5242
   Chemtrac: 800-424-9300

2. COMPOSITION
   Product Name: Smoke Generating Tubes
   Chemical Family: N/A
   Synonyms: Tin (IV) Chloride, Tin tetrachloride, Libavius Fuming Spirit
   Ingredient: Stannic Chloride
   Inert Ingredients
   CAS Number: 7646-78-8
   Percent: 5 - 15% 85 - 95%
   EC Number: 231-588-9
   UN Number: UN1827
   TWA: N/A N/A
   Molecular Weight: N/A N/A
   Molecular Formula: SnCl_4
   Notes: N/A N/A

3. HAZARDS IDENTIFICATION
   Health Hazard Data: Component SnCl_4 Toxic Oxides and HCl Compounds
   U. S. 8 hr. TWA N/A 2mg/m^3 as Sn 5ppm Ceiling OSHA
   2ppm Ceiling ACGIH
   Carcinogen Inadequate Data Inadequate Data No
   Physical Data: Vapors are corrosive to skin and overexposure can result in serious injury or death.
   Chemical Dangers: N/A
   Routes of Entry: Inhalation, skin, and ingestion.
   Health Hazards
   Inhalation: Symptoms of inhalation exposure include severe coughing, wheezing, shortness of breath, headaches, nausea, and vomiting.
   Skin Contact: Exposure to skin causes irritation or tissue burns.
   Eye Contact: Corrosive.
   Ingestion: May be fatal.
   Chronic exposure and
HAZARDS IDENTIFICATION (Con’t)

Acute Exposure: Stannic Chloride is considered Highly Toxic (USA) or Toxic (UE) and is corrosive to skin, eyes, and respiratory tract. Contact with moisture releases hydrochloric acid fumes, which is also highly corrosive. Contact with moist air also releases tin compounds, which may be toxic. Symptoms of inhalation exposure include severe coughing, wheezing, shortness of breath, headaches, nausea, and vomiting. Produces lung irritation and damage to the mucous membranes of the upper respiratory tract. In extreme cases, pulmonary edema can occur. Exposure to skin causes irritation or tissue burns. May be fatal if swallowed or on excessive contact.

Agger. Of Pre-Ex Cond: N/A

Notes: Users are not exposed to the hazardous components until the tubes are broken or breached. Read, understand and comply with all labels, warnings and instructions accompanying these tubes before use. Failure to comply may cause serious injury or death.

4. FIRST AID MEASURES

Inhalation: If inhaled enough to cause coughing remove victim to fresh air. If coughing persists, provide oxygen and contact a physician.

Skin Contact: If smoke contacts skin for a prolonged time, flush with copious amounts of water to 15 minutes and contact a physician.

Eye Contact: Immediately flush with water for 15 minutes and contact a physician.

Ingestion: Wash mouth out with water. Do not induce vomiting. Seek medical attention.

5. FIREFIGHTING MEASURES

Fire Hazards: Stannic chloride and HCl are non-flammable and have no known upper and lower explosive limits. Excessive heat may be released on contact with water. Fire hazard cause indirectly by release on HCl exposure of broken or breached tubes to moist air.

Fire Extinguisher: Dry Chemical.

Explosion: N/A

Flash Point: N/A

Volatile (% by volume): N/A

Exp. Limits (Vol. % in air): N/A

Auto Ignition Temp.: N/A

Special Fire Fighting Procedures: N/A

PPE for Fire Fighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

Notes: None.
6. **ACCIDENTAL RELEASE MEASURES**

Procedure for spill/leak: Contain any large leaks using a plastic vessel. Cover with a solid absorbent such as vermiculite or alkaline absorbent. Dilute and wash with plenty of water or soapy water. Dispose of washings and/or solids according to local regulations regarding hazardous waste. Each tube contains ~0.7 g SnCl$_4$.

Waste Disposal: None suggested.

Notes: None.

7. **HANDLING AND STORAGE**

Storage: Store in the box at <40 degrees C when not in use.

Shelf Life: N/A

PPE: N/A

Notes: None.

8. **EXPOSURE CONTROLS**

PPE: Use only the pump(s) at the flow rates specified in OSHA CFR 1910.134 and 29 CFR 1910.139. If the pump is operated at non-specified flow rates it could increase the smoke and fume concentrations and cause serious injury or death.

Inhalation: N/A

Skin: Wear safety gloves to protect against chemical exposure and flying glass.

Eye Protection: Wear safety glasses to protect against chemical exposure and flying glass.

Ingestion: N/A

Ventilation: Use only in well ventilated areas.

Engineering Controls: N/A

Work/Hygienic Practices: Wash hands after use.

Exposure Limits: N/A

Notes: None.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Component</th>
<th>SnCl$_4$</th>
<th>HCL</th>
<th>Inert Ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color/Appearance/Odor:</td>
<td>Slightly yellowish clear liquid</td>
<td>Colorless Gas</td>
<td>Inorganic solids</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>114 Degrees C</td>
<td>-85.1 Degrees C</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>-33 Degrees C</td>
<td>-114.2 Degrees C</td>
<td>N/A</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>(H$_2$O=1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refractivity Index:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Refractivity Index:</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Relative Density:</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporative Rate:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Content:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>N/A</td>
<td>1.268 (air = 1000)</td>
<td>N/A</td>
</tr>
<tr>
<td>Density:</td>
<td>2.226 g/cc</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>20mm Hg@ 20 Deg. C</td>
<td>41.6mm Hg@ 20 Deg. C</td>
<td>N/A</td>
</tr>
</tbody>
</table>
MATERIAL SAFETY DATA SHEET

PHYSICAL AND CHEMICAL PROPERTIES (Con’t)
Component: SnCl$_4$  HCL  Inert Ingredients
Solubility in Water: Decomposes  37% by weight  N/A
Solubility in Water: Complete

10. STABILITY AND REACTIVITY
Stability: Reacts with water and moisture in the air to form a smoke of HCl and tin oxychlorides.
Hazardous Decomposition
Products: N/A
Hazardous Polymerization: Will not occur, but HCl may catalyze the polymerization of other compounds.
Incompatibilities: Bases, ethylene oxide, water alcohols, metals.
Conditions to Avoid: Do not expose to air until use.
Materials to avoid: N/A

11. TOXICOLOGICAL INFORMATION
Health Effects: N/A
Oral LD50: N/A
Dermal LD50: N/A
Human Lethal Dose: N/A
Notes: None

12. ECOLOGICAL INFORMATION
None.

13. DISPOSAL CONSIDERATIONS
Dispose of washings and/or solids according to local regulations regarding hazardous waste. Each tube contains ~0.7 g SnCl$_4$ before use.

14. TRANSPORT INFORMATION
Proper Shipping Name: N/A
Hazard Class: N/A
Transport Emergency Card: N/A
Packing Group: N/A
UN Number: UN1827
Notes: None.

15. REGULATORY INFORMATION
TSCA Registered: N/A
FDA Approved: N/A
ICSC: N/A
16. OTHER INFORMATION

For use in respirator fit testing according to OSHA 29 CFR 1910.134 (App A) and OSHA 1910.139. Use only the pump(s) at the flow rates specified in OSHA CFR 1910.134 and 29CFR1910.139. If the pump is operated at non-specified flow rates it could increase the smoke and fume concentrations and cause serious injury or death.

Precautions with using product for Respirator Fit Testing:

Eyes should be kept tightly closed during fit testing.

DO NOT inhale smoke directly.

DO NOT use in a confined space.

DO NOT direct smoke stream directly at the skin during fit testing.

DO NOT use under a respirator fit testing hood or other enclosed space, because fume concentrations may build up to levels that can cause serious injury or death.

DO NOT use for fit testing on persons with pre-existing respiratory or related conditions or are allergic to tin compounds or hydrochloric acid.

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