MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION AND GENERAL INFORMATION

P/N#:	**2050, 2050-01, 2055**
Nomenclature:	**Irritant Smoke Tube**
Company Name:	Allegro Industries
Address:	7221 Orangewood Avenue Garden Grove, CA 92841 714-899-9855 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	N/A
Percent:	5-15%	85-95%
EC No.:	231-588-9	N/A
UN No.:	UN1827	N/A
TWA:	N/A	N/A
Molecular Weight:	N/A	N/A
Molecular Formula:	$SnC1_4$	N/A
Notes:	N/A	N/A

3. HAZARDS IDENTIFICATION

Health Hazard Data:	Component	$SnC1_4$	Toxic Oxides and Compounds	HC1
	U.S. 8hr TWA	N/A	2mg/m³ as Sn	5ppm Ceiling OSHA 2ppm Celing ACGIH
	Carcinogen	Inadequate data	Inadequate data	No

Physical Dangers: 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.
Target Organs: N/A

Health Hazards

Inhalation: Symptoms of inhalation exposure include severe coughing, wheezing, shortness of breath, headaches, nausea, and vomitng.
Skin Contact: Exposure to skin causes irritation or tissue burns.
Eye Contact: Corrosive.
Ingestion: May be fatal.
Chronic Exposure and Acute Exposure: Stannic Chloride is considered Highly Toxic (USA) or Toxic (EU) and is corrosive to the 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.
Aggr. of Pre-Ex Cond: N/A
Notes: Users are not exposed to the hazardous components until the tubes are broken. Read, understand and comply with all labels, warnings and instructions accompying 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 for 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. FIRE FIGHTING MEASURES

Fire Hazards: Stannic chloride and HC1 are non-flammable and have no known upper and lower explosion limits. Excessive heat may be released on contact with water. Fire hazard caused indirectly by release on HC1 of exposure of broken tubes to moist air.
Fire Extinguisher: Dry powder.
Explosion: N/A
Flash Point: N/A
Volatile (% by volume): N/A
Exp. Limits (Vol % in air): N/A
Auto Ignition Temperature: N/A
Special Fire Fighting Proc: N/A
PPE for Fire Fighters: Wear SCBA and protective clothing.
Notes: None.

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6. ACCIDENTAL RELEASE MEASURES

Procedure for Spill/Leak:	Contain any large leaks using a plastic vessel. Cover with 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.

7. HANDLING AND STORAGE

Storage:	Store in the box at <40°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 opertaed 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:	Wear safety glasses to protect against chemical exposures and flying glass.
Ingestion:	N/A
Ventilation:	Use only in well-ventilated area.
Engineering Controls:	N/A
Work/Hygienic Practices:	Wash hands after use.
Exposure Limits:	N/A
Notes:	None.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component:	$SnCl_4$	HCl	Inert Ingredients
Color/Appearance/Odor:	Slightly yellowish clear liquid	Colorless Gas	Inorganic solids
Boiling Point:	114°C	-85.1°C	N/A
Melting Point:	-33°C	-114.2°C	N/A
Specific Gravity (H_2O=1):	N/A	N/A	N/A
Refractive Index:	N/A	N/A	N/A
Relative Density:	N/A	N/A	N/A
Evaporative Rate :	N/A	N/A	N/A
Water Content:	N/A	N/A	N/A
Vapor Density:	N/A	1.268 (air=1000)	N/A
Density:	2.226 g/cc	N/A	N/A
Vapor Pressure:	20 mm Hg @ 20°C	41.6 mmHg @20°C	N/A
Solubility in Water:	Decomposes	37% by weight	N/A

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, ethlene 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:	N/A
Reportable Quantity:	N/A
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 29 CFR 1910.139. If the pump is opertaed 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 medical conditions or are allergic to tin compounds or hydrochloric acid.