

MATERIAL SAFETY DATA SHEET

SMOKE GENERATING TUBES

DATE PREPARED: 5 April 2010

DATE REVIEWED: 5 April 2010

SECTION I – MANUFACTURER AND CONTACT INFORMATION

MANUFACTURER:

Uniphos Envirotronic Pvt. Limited
P.O. Nahuli – 396108
Via Vapi, Dist. Valsad, Gujarat, India

CONTACT INFORMATION:

Factory Direct Safety & Environmental Inc.
9595 Six Pines Drive, Suite 8210
The Woodlands, TX 77380 USA
Tel. 1-877-331-3373

SECTION II – HAZARDOUS COMPONENTS

- a) **STANNIC CHLORIDE:** 5-14% **Formula:** SnCl₄ **CAS No:** 7646-78-8 **EIC No:** 231-588-9
Synonyms: Tin chloride, Tin (IV) chloride, Tin tetrachloride, Libavius Fuming Spirit
- b) **INERT INGREDIENTS:** 86-95% (non-hazardous)

SECTION III – PHYSICAL AND CHEMICAL PROPERTIES

Component	SnCl ₄	HCl	Inert Ingredients
Description	Clear yellowish liquid	Colorless gas	Inorganic solids
Melting Point	-33°C	-114°C	NA*
Boiling Point	114°C	-85°C	NA
Vapor Pressure	20 mm Hg @ 20°C	42 mm Hg @ 20°C	NA
Vapor Density	NA	1.268 (air = 1.000)	NA
Liquid Density	2.226 g/mL	NA	NA
Water Solubility	Decomposes	37% w/w	NA

* NA = Not available or not applicable

SECTION IV – FIRE AND EXPLOSION HAZARDS

Stannic chloride and hydrogen chloride are non-flammable and pose no explosion hazard. Excessive heat may be released on contact with water and possibly cause the ignition of other flammable materials.

SECTION V – REACTIVITY

REACTIVITY: Stannic chloride reacts with water or moisture in the air to form hydrogen chloride tin oxychloride products, which are visible as a smoke.

CONDITIONS TO AVOID: Do not expose to air or water until use.

INCOMPATIBILITIES: Water, alcohols, bases, metals

HAZARDOUS POLYMERIZATION: Will not occur. HCl can cause the polymerization of other compounds.

SECTION VI – HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation. Also possible are skin exposure and ingestion.

HEALTH HAZARDS (Acute & Chronic): Stannic chloride is listed as Highly Toxic (USA) or Toxic (EU). It is highly corrosive to the skin, eyes, and respiratory tract. Contact with water releases hydrochloric acid, which is also highly corrosive. Contact with humid air releases a smoke consisting of hydrochloric acid and tin oxychlorides, which is corrosive and somewhat toxic. Symptoms of inhalation exposure include severe coughing, wheezing, shortness of breath, nausea, headaches, and vomiting. Inhalation causes lung irritation and damage to the mucous membranes of the upper respiratory tract. In extreme cases, pulmonary edema can

occur. Dermal exposure causes irritation or burns. Severe exposure by inhalation, skin contact, or ingestion may be fatal.

Component	SnCl ₄	HCl	Tin Oxychlorides
TWA (TLV, PEL or REL)	2 mg/m ³ as Sn	NA*	2 mg/m ³ as Sn
Ceiling	NA	2 ppm (TLV), 5 ppm (PEL, REL)	NA
Carcinogenicity	Insufficient Data	No	Insufficient Data

FIRST AID PROCEDURES:

Inhalation: Remove from exposure source, rest and keep warm. Seek medical attention. Provide oxygen therapy for persistent cough or difficulty breathing.

Skin and eyes: Flush thoroughly with water and in severe cases seek medical attention.

Ingestion: Flush mouth with water but do not induce vomiting. Seek medical attention.

SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

- Read, understand, and comply with all labels, warnings and instructions accompanying these tubes before use. Failure to comply may result in severe injury or death.
- Wear a respirator as in NIOSH 42 CFR 84 when exposed to smoke from the tubes. Wear safety glasses and gloves to guard against flying glass pieces and chemical exposure.
- Avoid contact of the smoke with eyes or skin. Vapors are corrosive to the skin and high exposures can cause skin burns, severe injury or death. If smoke contacts eyes or skin, flush with water for 15 minutes and call a physician.
- Respirator fit testing should be conducted in strict compliance with OSHA 29 CFR 1910.134 (Appendix A) and 29 CFR 1910.139. Subject should keep eyes closed during fit testing. **Do not** use these tubes for fit testing on individuals who have pre-existing respiratory or cardiovascular medical conditions, or are allergic to tin compounds or hydrochloric acid.
- During fit testing, use only the pump(s) and flowrates specified in OSHA 29 CFR 1910.134 (Appendix A) and 29 CFR 1910.139. If non-specified flowrates are used, the smoke concentration could accumulate enough to cause severe injury or death.
- Use only in a well-ventilated area. **Do not** use in a confined space or under a respiratory fit testing hood, as fume concentrations can build up enough to cause severe injury or death.
- **Do not** inhale smoke directly. If inhalation causes coughing, move victim to fresh air. If coughing persists, provide oxygen and call a physician.
- **Do not** allow smoke to contact food or use smoke tubes in dining areas. Ingestion of food or drink that has been exposed to smoke may cause severe injury or death.
- When using smoke as a flow indicator, avoid exposure to persons that may be downstream of the smoke.
- The process of breaking open a tube can generate flying glass bits and leave the tube with sharp edges. Use eye and hand protection when opening tubes.
- Keep tubes out of reach of unauthorized persons, especially children.

LEAK AND DISPOSAL PROCEDURES: Contain any large leaks using a plastic vessel. Cover with solid absorbent such as vermiculite or alkaline material. Dilute and wash with plenty of water. Dispose of washings and/or solids according to local regulations regarding hazardous waste. Each tube contains about 0.9 g SnCl₄.

SECTION VIII – CONTROL MEASURES

Store in the box at <40°C when not in use.