

SAFETY DATA SHEET

SECTION 1a: IDENTIFICATION

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MSDS #5100

Air Flow Indicator Tubes

SECTION 1b: CHEMICAL IDENTIFICATION

Material Name: Air Flow Indicator Tubes

Chemical Name & Synonyms: Smoke tubes, Stannic Chloride, CAS No. 7646-78-8

Chemical Family: Metal Chloride

Formula: SnCl₄

SECTION 2: HAZARDS IDENTIFICATION



Warning.

Causes skin irritation and serious eye irritation by contact with smoke. Harmful if inhaled. Stannic chloride reacts with ambient humidity to liberate a white smoke consisting of HCl and tin compounds.

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS

	%	OSHA PEL	ACGIH TLV (2013)
Stannic chloride	ca 100 (comb.)	5 ppm ceiling for HCl 2 mg/m ³ for tin compounds	2 ppm ceiling for HCl 2 mg/m ³ for tin compounds

SECTION 4: FIRST AID MEASURES

Eyes: Flush immediately with running water for at least 15 minutes, including under eyelids. Contact a physician.

Skin: Flush affected areas with running water. Get medical help in case of large area contact or if irritation persists.

Inhalation: Remove victim to fresh air. Restore and/or support breathing, as necessary. Provide oxygen therapy for persistent coughing or if breathing is difficult. Keep victim warm and at rest. Get medical help.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing Media: Suitable for surrounding fire.

Special Firefighting Procedures: Fire fighters should wear SCBA units to protect against possible toxic decomposition products.

Unusual Fire & Explosion Hazards: Fires encompassing the tubes will emit toxic fumes of chlorides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spills Procedure: Does not apply.

SECTION 7: HANDLING AND STORAGE

Handling & Storage: Store in the original container in a cool dry place. Protect against light, heat and physical damage.

Other Precautions: Avoid eye and skin contact with smoke. Do not breathe smoke. Use only as directed. Use only in well ventilated areas. Wash hands prior to eating, drinking, smoking or applying cosmetics. Avoid cuts from broken ends of glass tubes.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Hydrogen Chloride

Ceiling: 5 ppm (7 mg/m³) from OSHA [United States, 2013] Inhalation.

Ceiling: 2 ppm (2.98 mg/m³) from ACGIH [United States, 2013] Inhalation.

Tin compounds

TWA: 2 mg/m³ from OSHA [United States, 2013] Inhalation.

TWA: 2 mg/m³ from ACGIH [United States, 2013] Inhalation.

Protective Equipment: No respiratory protection is required during normal use as an HVAC air flow indicator except in tight spaces. Local ventilation is adequate as long as the smoke can be avoided. Safety glasses with side shields should be worn to minimize eye contact. Safety gloves are not necessary for normal use, although skin contact with HCl and the broken glass tubes should be avoided.

If used for respirator fit testing, follow OSHA 29CFR, 1910.134 Irritant Smoke Protocol found in Appendix A of that document under "Fit Testing Procedures - General Requirements" and "Irritant Smoke Protocol". Use only as directed in well ventilated areas per the OSHA protocol. Do not use inside concentration hoods, tents or other enclosures designed for other fit test methods. Test only the respirator types specified in the OSHA protocol. Test only subjects that have been properly fitted per the OSHA protocol and have passed the respirator manufacturer's recommended negative or positive pressure qualitative test. Conduct any sensitivity screening tests only per the OSHA protocol, using only a weak concentration of the smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Hydrogen chloride is a colorless gas with a pungent odor. It fumes strongly in moist air forming white hydrochloric acid fume. The emitted tin compound has a strong irritating odor.

Boiling Point, 1 Atm, °F (°C): -121 (-85)*

Specific Gravity: 1.10 (H₂O=1.0)

Vapor Pressure, mm Hg: 41.6 @ 20°C*

Evaporation Rate: N/A

Solubility in Water: 37% by weight @ rt*

*Physical data for HCl

Flash Point: None

Auto Ignition Temperature: None

Flammability Limits: N/A

SECTION 10: STABILITY AND REACTIVITY

Stability: HCl is a stable compound. It does not undergo hazardous polymerization; however HCl can catalyze some polymerizations of other compounds.

Conditions to Avoid: Incompatible materials include alkalines, metal oxides and metals.

Hazardous Decomposition Products: When heated to decomposition, the smoke tubes will emit chloride fume.

SECTION 11: TOXICOLOGICAL INFORMATION

LC₅₀: 2,300 mg/cu m/10 min rat, inhalation for SnCl₄ dust and mist. [Lewis, R.J. Sax's Dangerous

Properties of Industrial Materials. 9th ed. Volumes 1-3. New York, NY: Van Nostrand Reinhold, 1996., p. 3176]

SECTION 12: ECOLOGICAL INFORMATION

Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Procedure: Soak used tubes in water and neutralize the water with sodium carbonate or equivalent alkaline substance. Dispose tubes via landfill. Consult local authorities to assure compliance with local, state and federal regulations for small scale disposal of tin compounds.

SECTION 14: TRANSPORT INFORMATION

DOT Classification: Not available

SECTION 15: REGULATORY INFORMATION

All ingredients are listed on the following Government Inventory Lists: Australia AICS, Canada DSL, China IECSC, European Union EINECS, Japan ENCS, Korea KECI/KECL, Mexico INSQ, New Zealand NZIoC, Philippines PICCS, United States TSCA Section 8(b).

SECTION 16: OTHER INFORMATION

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SDS Revised: September 24, 2013