

WHAT IT IS

A sealed red Teflon plastic tube 1-1/4" in diameter and 7" long with a 1/4" Teflon connector, a 2" rubber hose with cap/nozzle "T". A 10 ml glass vial of smoke generating chemical (double the regular size) is pre-installed inside the tube at the factory. **No mess**; Just bend to activate. Ideal for locating leaks and detecting air currents. Shelf life, unlimited. Good for 1000+ puffs or one year when activated (with cleaning), then discard.

Your Air Current Tester includes: 1 loaded Air Current Tester with cap/nozzle, 1 storage tube (with absorption packet, 2 cleaner sticks, 2 spare nozzles, 1 spare 3" rubber hose), MSDS instructions and this Model 4 instruction sheet.

BENEFITS OVER CONVENTIONAL RECHARGEABLE SMOKE GUNS

- o Clean
- o Indoor Activation
- o Unbreakable No Glass Vials of Chemical
- o Professional appearance
- o Low Maintenance

REMOVE PUFFER FROM STORAGE TUBE

Cut or remove tape where noted: "Open This End", and twist off cap.

Do Not open where noted: "SPARES" & "Spare Cap, Nozzle, "T" and Hose", unless spares are needed.

ACTIVATE NEW AIR CURRENT TESTER

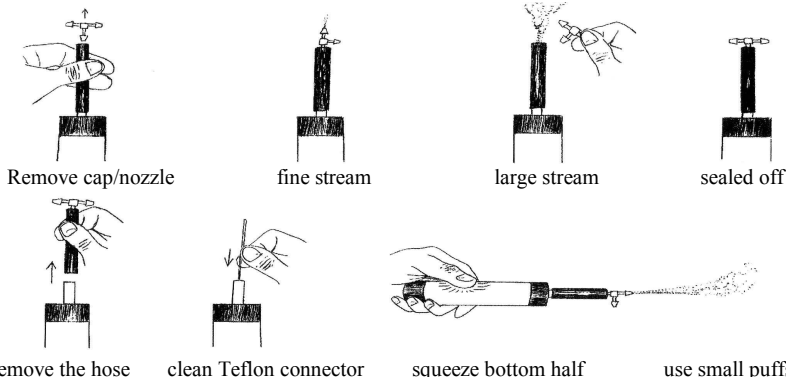
- 1) Remove the cap/nozzle "T".
- 2) Point the nozzle up.
- 3) Place thumbs 3" from end caps and 1/2" apart.
- 4) Bend the red tube till the internal glass vial breaks.
- 5) Hold the nozzle **up for one minute**. (To allow the liquid to flow into the internal wick.)
- 6) Hold the puffer horizontally or up for next 10 minutes. (To allow the liquid to flow into the internal wick.)
- 7) Useable immediately. (Although it may take several hours for the smoke to flow at its maximum).



Bend to Activate-Hold Upright

OPERATING THE PUFFER

- 1) Remove the cap/nozzle "T" outdoors or in front of an exhaust fan because pressure can build up inside the puffer creating a smoke cloud upon first opening the nozzle cap.
- 2) Gently squeeze the last 4" of the red tube furthest from the nozzle to get a smoke stream. Direct small puffs toward suspected leaks.
- 3) Clean the nozzle with the wood stick supplied or a toothpick or wire every hour or as required. Wipe goop from the tip with a dry paper towel. Remove the 3" rubber hose and clear the 1/4" teflon connector regularly.
- 4) Replace puffer inside airtight tube with dehydrating packet.



STORAGE

Store inside the storage tube, horizontally, in a cool (below 90° F) dry place **away from the sun**, electronics and metal. The chemicals will corrode and damage electronics and metal.

CAP/NOZZLE REPLACEMENT

- 1) Replace cap/nozzle "T" or hose when it begins to deteriorate **NOT** when it gets plugged.
- 2) Discard the old cap/nozzle - replace with new cap/nozzle from storage tube end labeled "spare cap/nozzle".

CAUTION

- 1) Do not inhale the chemical smoke!
- 2) Read the MSDS safety data sheet provided for Titanium Tetrachloride (TiCl4).
- 3) Use the smoke in small quantities.
- 4) Pressurize the enclosure being tested for leaks so that test smoke gets blown outdoors.
- 5) Keep away from children.
- 6) **DO NOT LEAVE IN SUN**
- 7) **DO NOT STORE ABOVE 90° F**

CARRYING

Use belly pouch. Carry puffer nozzle up. **DO NOT** carry nozzle down in your pocket - it may leak!

LIQUID SPILLS

Flush with cold water. Wash hands immediately. Clear smoke immediately with blower door exhaust fans and/or open doors.

Section 1 - Product and Company Information

Product Name:	TITANIUM(IV) CHLORIDE, 99.995+%		
Product Number:	254312		
Brand:	ALDRICH		
Company:	Sigma-Aldrich	Technical Phone:	314 771 5765
Street Address:	3050 Spruce Street	Emergency Phone:	414 273 3850 Ext. 5996
City, State, Zip, Country:	SAINT LOUIS MO 63103 US	Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
TITANIUM (IV) CHLORIDE	7550-45-0	Yes
Formula: TiCl4		

Synonyms Tetrachlorure de titane (French) * Titaantetrachloride (Dutch) * Titane (tetrachlorure de) (French) * Titanio (tetracloruro di) (Italian) * Titantetrachlorid (German)
RTECS Number: XR1925000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW: Highly Toxic (USA) Very Toxic (EU); Very toxic by inhalation. Reacts violently with water; Causes burns. Lachrymator. Target organ(s): Lungs.

HMIS RATING

HEALTH: 4*

FLAMMABILITY: 0

REACTIVITY: 2

SPECIAL HAZARD(S): Water reactive

NFPA RATING

HEALTH: 4

FLAMMABILITY: 0

REACTIVITY: 2

SPECIAL HAZARD(S): Water reactive

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT: N/A

AUTOIGNITION TEMP: N/A

FLAMMABILITY: N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable: Do not use water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Emits toxic fumes under fire conditions.

Water reactive material.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Store in a cool dry place. Handle

and store under nitrogen.

Incompatible Materials: Do not allow contact with water

SPECIAL REQUIREMENTS

Handle and store under inert gas. Moisture sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance Physical State: Liquid	SG/Density 1.73 g/cm3	Partition Coefficient N/A	N/A = not available
Property Value At Temperature or Pressure	Bulk Density N/A	Decomposition Temp. N/A	
Molecular Weight 189.71 AMU	Odor Threshold N/A	Flash Point N/A	
pH N/A	Volatile% N/A	Explosion Limits N/A	
BP/BP Range 136.4 °C 760 mmHg	VOC Content N/A	Flammability N/A	
MP/MP Range -25 °C	Water Content N/A	Autoignition Temp N/A	
Freezing Point N/A	Solvent Content N/A	Refractive Index N/A	
Vapor Pressure 9.6 mmHg 20 °C	Evaporation Rate N/A	Optical Rotation N/A	
Vapor Density N/A	Viscosity N/A	Miscellaneous Data N/A	
Saturated Vapor Conc. N/A	Surface Tension N/A	Solubility N/A	

Section 10 - Stability and Reactivity

STABILITY Stable: Stable. Conditions to Avoid: Do not allow water to enter container because of violent reaction. Materials to Avoid: Strong oxidizing agents.	HAZARDOUS DECOMPOSITION PRODUCTS Hazardous Decomposition Products: Titanium/titanium oxides Hydrogen chloride gas. HAZARDOUS POLYMERIZATION Hazardous Polymerization: Will not occur
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Section 11 - Toxicological Information

ROUTE OF EXPOSURE Skin Contact: Causes burns. Skin Absorption: May be harmful if absorbed through the skin. Eye Contact: Causes burns. Lachrymator. Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Highly toxic by inhalation. Ingestion: May be harmful if swallowed. TARGET ORGAN(S) OR SYSTEM(S): Lungs.	SIGNS AND SYMPTOMS OF EXPOSURE Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.
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TOXICITY DATA	Inhalation Rat 1,100 mg/m3 LC50	1 H Inhalation Rat 1,300 mg/m3 LC50	50 MIN Inhalation Rat 3,000 mg/m3 LC50	Inhalation Rat 400 mg/m3 LC50	Inhalation Mouse 100 mg/m3 LC50
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Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT Proper Shipping Name: Titanium tetrachloride UN#: 1838 Class: 8 Packing Group: Packing Group II Hazard Label: Corrosive Hazard Label: Poison inhalation hazard	PIH: ZONE B IATA Proper Shipping Name: Titanium tetrachloride IATA UN Number: 1838 Hazard Class: 8 Packing Group: II Not Allowed - Aircraft: Not permitted for air transport.
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Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION Symbol of Danger: C Indication of Danger: Corrosive. R: 14 34 Risk Statements: Reacts violently with water. Causes burns. S: 7/8 26 36/37/39 45 Safety Statements: Keep container tightly closed and dry. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). US Statements: Lachrymator. Target organ(s): Lungs.
US CLASSIFICATION AND LABEL TEXT Indication of Danger: Highly Toxic (USA) Very Toxic (EU). Risk Statements: Very toxic by inhalation. Reacts violently with water. Causes burns. Safety Statements: Keep container tightly closed and dry. In case of contact	UNITED STATES REGULATORY INFORMATION SARA LISTED: Yes DEMINIMIS: 1 % NOTES: This product is subject to SARA section 313 reporting requirements. TSCA INVENTORY ITEM: Yes CANADA REGULATORY INFORMATION WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes NDSL: No

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

RETROTEC NOTES:

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The possibility of a chemical spill from the Air Current Tester is very small, as would be the amount. The hazardous component, hydrochloric acid, present as a gas or liquid, is produced on contact with humidity or water; this reaction also releases oxides of titanium as smoke.

Appropriate action in case of a very small spill on skin, in eyes, on cloths or floor would be to immediately flood spill with water, this will release the acid into the air where it will quickly dissipate; AVOID BREATHING CONCENTRATED SMOKE. Wash thoroughly with soap, ventilate room as needed and seek medical attention for exposure as defined in Item 4 of the MSDS above. Neutralize with sodium carbonate or baking soda to stop any residual corrosion.

(EPA regulations, 302.4, 302.5, indicate a reportable spill quantity to be 1000 lbs. - 453kg)