

MATERIAL SAFETY DATA SHEET

Manufacturer: Strem Chemicals, Inc
 7 Mulliken Way
 Newburyport, MA 01950-4098 U.S.A.
 www.strem.com

Strem Customer Service (978) 499-1600
 CHEMTREC (Emergency Only) (800) 424-9300
 Poison Center (800) 562-8236

Section 1: Product Identification	
Chemical Name:	Tetrakis(dimethylamino)titanium(IV),99% TDMAT, 93-2240, contained in 50 ml Swagelok® cylinder (96-1070) for CVD/ALD
Product Number:	98-4015
CAS Registry Number:	3275-24-9
Formula:	Ti[N(CH ₃) ₂] ₄
EINECS Number:	221-904-3
Chemical Family:	metal amide complex
Synonym:	none

Section 2: Composition and Information on Ingredients				
Ingredient	CAS Number	Percent	ACGIH (TWA)	OSHA (PEL)
Title compound	3275-24-9	100%	no data	no data

Section 3: Hazards Identification	
Emergency Overview:	Flammable liquid and vapor. Inhalation may cause dizziness and headache. Corrosive to eyes, skin and mucous membranes. Harmful if swallowed, inhaled or absorbed through the skin.
Primary Routes of Exposure:	Eyes, skin, inhalation
Eye Contact:	Causes burns to the eyes.
Skin Contact:	Causes mild to severe irritation of the skin. Prolonged contact may dry the skin and lead to rashes or more severe irritation.
Inhalation:	Corrosive to the nose, mucous membranes and respiratory tract.
Ingestion:	Corrosive to mouth, throat and stomach. No information available on the physiological effects of ingestion.
Acute Health Affects:	Corrosive to skin, eyes and mucous membranes.
Chronic Health Affects:	No information on long-term chronic effects.
NTP:	No
IARC:	No
OSHA:	No

SECTION 4: First Aid Measures	
Eye Exposure:	Immediately flush the eyes with copious amounts of water for at least 10-15 minutes. A victim may need assistance in keeping their eye lids open. Get immediate medical attention.
Skin Exposure:	Wash the affected area with water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.
Inhalation:	Remove the victim to fresh air. Closely monitor the victim for signs of respiratory problems, such as difficulty in breathing, coughing, wheezing, or pain. In such cases seek immediate medical assistance.
Ingestion:	Seek medical attention immediately. Keep the victim calm. Give the victim water (only if conscious). Induce vomiting only if directed by medical personnel.

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SECTION 5: Fire Fighting Measures	
Flash Point:	-22°F
Autoignition Temperature:	no data
Explosion Limits:	no data
Extinguishing Medium:	carbon dioxide, foam or dry powder
Special Fire Fighting Procedures:	If this product is involved in a fire, fire fighters should be equipped with a NIOSH approved positive pressure self-contained breathing apparatus and full protective clothing.
Hazardous Combustion and Decomposition Products:	If involved in a fire, this material may release toxic and irritating fumes.
Unusual Fire or Explosion Hazards:	Flammable liquid. No unusual fire or explosion hazards.

SECTION 6: Accidental Release Measures	
Spill and Leak Procedures:	Small spills can be absorbed into vermiculite or other suitable adsorbent. Larger spills: eliminate all potential ignition sources. Material may begin to hydrolyze forming irritating and noxious fumes. Absorb the material into sawdust or clay. Emergency team must wear a self-contained breathing apparatus.

SECTION 7: Handling and Storage	
Handling and Storage:	Store in a cool, dry, well-ventilated area away from heat and direct sunlight. Keep containers tightly sealed. This product will react with atmospheric moisture and chemically degrade. Transfer material under an inert atmosphere of nitrogen or argon.

SECTION 8: Exposure Controls and Personal Protection	
Eye Protection:	Always wear approved safety glasses when handling a chemical substance in the laboratory.
Skin Protection:	Wear protective clothing and gloves. Consult with glove manufacturer to determine the proper type of glove.
Ventilation:	Handle the material in an efficient fume hood.
Respirator:	If ventilation is not available a respirator should be worn. The use of respirators requires a Respirator Protection Program to be in compliance with 29 CFR 1910.134.
Ventilation:	Handle the material in an efficient fume hood.
Additional Protection:	No additional protection required.

SECTION 9: Physical and Chemical Properties	
Color and Form:	yellow to orange liq.
Molecular Weight:	224.2
Melting Point:	no data
Boiling Point:	50°C /0.5mm
Vapor Pressure:	no data
Specific Gravity:	0.96
Odor:	amine odor
Solubility in Water:	reacts violently with water

SECTION 10: Stability and Reactivity	
Stability:	moisture sensitive liq.
Hazardous Polymerization:	no hazardous polymerization
Conditions to Avoid:	contact with moisture
Incompatibility:	water, mineral acids, halogens and oxidizing agents
Decomposition Products:	carbon dioxide, carbon monoxide, nitrogen oxides, organic fumes and titanium oxide

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SECTION 11: Toxicological Information

RTECS Data: No information available from the RTECS files.
Carcinogenic Effects: no data
Mutagenic Effects: no data
Tetratogenic Effects: no data

SECTION 12: Ecological Information

Ecological Information: No information available.

SECTION 13: Disposal Considerations

Disposal: Dispose of this material according to local, state and federal regulations.

SECTION 14: Transportation

Shipping Name (CFR): Organometallic substance, Liquid,Water-reactive,Flammable
Hazard Class (CFR): 4.3
Additional Hazard Class (CFR): 3
Packaging Group (CFR): II
UN ID Number (CFR): UN# 3399
Shipping Name (IATA): Organometallic substance, Liquid,Water-reactive,Flammable
Hazard Class (IATA): 4.3
Additional Hazard Class (IATA): 3
Packaging Group (IATA): II
UN ID Number (IATA): UN# 3399

SECTION 15: Regulatory Information

TSCA: Listed in the TSCA inventory
SARA (Title 313): Title compound not listed
Second Ingredient: none
Third Ingredient: none

SECTION 16: Other Information

Disclaimer: The information herein is believed to be accurate and reliable as of the date compiled. However, Strem Chemicals, Inc. makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information.
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