

11555 Medlock Bridge Road, Suite 100, Johns Creek, GA 30097, USA

T: +1.888.658.1221 F: 1.678.619.2020

E: <u>info@ereztech.com</u> W: <u>http://ereztech.com</u>

# SAFETY DATA SHEET

### Section 1. Identification

**Product Name:** Tantalum tetraethoxy dimethylaminoethoxide.

Product Type: Liquid.

**CAS Number:** 172901-22-3

Product Number: TA1223

Product Manufacturer: Ereztech LLC

11555 Medlock Bridge Road, Suite 100

Johns Creek, GA 30097

**Product Information:** (888) 658-1221

In Case of an Emergency: CHEMTREC: 1-800-424-9300 (USA);

+1 703-527-3887 (International); CCN836180
\*\*\* Contact manufacturer for all non-emergency calls.

### Section 2. Hazards Identification

Appearance/Odor: Straw to amber colored liquid, odor not determined.

Classification: ACUTE TOXICITY, ORAL – Category 5, H303
ACUTE TOXICITY, DERMAL – Category 5, H313

SKIN CORROSION/IRRITATION - Category 2, H315

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A, H319

ACUTE TOXICITY, INHALATION – Category 4, H332

SPECIFIC TARGET ORGAN TOXICITY, SINGLE EXPOSURE; RESPIRATORY TRACT IRRITATION – Category 3, H335

**GHS Label Elements** 

**Hazard Pictograms:** 



Signal Word: WARNING

Hazard Statements: H303: May be harmful if swallowed.

H313: May be harmful in contact with skin.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H332: Harmful if inhaled.

### Section 2. Hazards Identification

H335: May cause respiratory irritation. Hazard Statements (cont.):

**Precautionary Statements** 

**Prevention:** P261: Avoid breathing fume/gas/mist/vapors/spray.

P264: Wash skin thoroughly after handling.

P271: Use only outdoors or in well-ventilated area.

P280: Wear protective gloves/ protective clothing/ eye protection/

face protection.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water. Response:

P304 + P340: IF INHALED: Remove victim to fresh air and keep at

rest in a position comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for

several minutes. Remove contact lenses, if present. Continue

rinsing.

P311: Call a POISON CENTER or doctor/physician.

P312: Call a POISON CENTER or doctor/physician if you feel

unwell.

P332 + P313: If skin irritation occurs: Get medical

advice/attention.

P337 + P313: If eye irritation persists: Get medical

advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P403 + P233: Store in a well ventilated place. Keep container

tightly closed.

P405: Store locked up.

P501: Dispose of contents/ container to an approved wasted Disposal:

disposal plant.

This material is considered hazardous by the OSHA Hazard **OSHA/HCS Status:** 

Communication Standard (29 CFR 1910.1200).

**Hazards Not Otherwise** 

Reacts slowly with water to release ethanol and

Classified: dimethylaminoethanol (DMAE).

# Section 3. Composition/Information on Ingredients

**Substances** 

Storage:

 $: C_{12}H_{30}NO_5Ta$ **Formula** 

: Tantalum tetraethoxide dimethylaminoetoxide. **Synonyms** 

**Molecular Weight** : 449.32 g/mol : 172901-22-3 CAS-No.

Ingredient Name	%	CAS Number
Tantalum tetraethoxy dimethylaminoethoxide	≥ 98	172901-22-3

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### Section 3. Composition/Information on Ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

### Section 4. First Aid Measures

#### **Description of Necessary First Aid Measures**

General Advice: Move out of dangerous area. Show this safety data sheet to the doctor in

attendance.

**Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and

lower eyelids. Check for and remove any contact lenses. Continue rinsing. Seek

medical attention if eye irritation develops and persists.

**Skin Contact:** Take off contaminated clothing and shoes immediately. Wash off contaminated

skin with soap and plenty of water. Seek medical attention if irritation develops

and persists or if burns occur.

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for

breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a POISON CENTER or doctor/physician if you feel unwell or if

symptoms develop.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Remove dentures if any. If vomiting

occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a POISON CENTER or doctor/physician if you feel unwell or if symptoms develop.

#### Most Important Symptoms/Effects, Acute And Delayed Potential Acute Health Effects

**Eye Contact:** Causes eye irritation. Symptoms may include itching, watering and redness.

Prolonged contact may cause temporary/permanent damage to eye tissues.

**Inhalation:** Compounds released when product is exposed to moisture/water may be

expected to be corrosive to mucous membranes and tissues of the upper respiratory tract. Symptoms may include coughing, shortness of breath,

difficulty in breathing, nausea and headaches.

**Skin Contact:** Skin contact with this product may cause irritation. Symptoms may include

burning, itching, and redness. Prolonged product contact may cause burns to

exposed tissues.

#### Section 4. First Aid Measures

Compounds released when product is exposed to moisture/water may be Ingestion:

> expected to be corrosive to mucous membranes and tissues of the mouth, esophagus and digestive tract. Symptoms may include burning, nausea,

vomiting and abdominal pain.

On contact with water, this product produces ethanol which is known to have a Chronic

chronic effect on the Central Nervous System (CNS). **Symptoms:** 

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

**Notes to Physician:** Treat symptomatically. **Specific Treatments:** No specific treatment.

**Protection of First Responders:** No action taken shall be taken involving any personal risk

> without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**See Toxicological Information (Section 11)** 

**Explosion Hazards:** 

### Section 5. Fire Fighting Measures

General Hazards: Product reacts slowly with water to release ethanol and

dimethylaminoethanol.

**Suitable Extinguishing Media:** THE MOST EFFECTIVE FIRE EXTINGUISHING AGENT IS DRY

> CHEMICAL POWDER PRESSURIZED WITH NITROGEN. Vermiculite, sand, dry chemical or carbon dioxide (CO<sub>2</sub>) may

also be used.

**Unsuitable Extinguishing Media:** DO NOT USE WATER OR FOAM as product reacts to produce

extremely flammable vapors upon contact with water.

**Unusual Fire and** This material reacts slowly with water and compounds

> containing active hydrogen such as alcohols and acids to produce ethanol and dimethylaminoethanol. Product runoff to

sewer may create a fire or explosion hazard. Ethanol and dimethylaminoethanol vapors/gases that are released from product hydrolysis are heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas

or travel a considerable distance to an ignition source and

flashback.

Carbon oxides  $(CO_x)$ , tantalum oxides, nitrogen oxides  $(NO_x)$ . **Product of Combustion:** 

Promptly isolate the scene by removing all persons from the **Protection of Firefighters:** vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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### Section 5. Fire Fighting Measures

**Protection of Firefighters (cont.):** 

Avoid contact with skin or eyes. Avoid breathing mists, sprays, gases and vapors.

Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.

#### Section 6. Accidental Release Measures

#### Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel:

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid the formation and inhalation of sprays, mists, vapors or gases. Provide adequate ventilation. Wear respiratory protection. Put on appropriate personal protective equipment.

For Emergency Responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

**Environmental Precautions:** 

Do not allow dispersal of spilled material and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

#### **Methods for Containment**

**General:** 

Move containers from spill area if safe to do so. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues.

**Small Spill:** 

Contain and collect spillage with a dry absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor.

Large Spill:

Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with a dry absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal according to local regulations (see Section 13).

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### Section 6. Accidental Release Measures

Large Spill (cont.):

Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with a dry absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

### Section 7. Handling and Storage

**Precautions:** 

Product is moisture sensitive; handle under a dry, inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Keep container tightly sealed. Avoid contact with skin, eyes and clothing. Avoid the formation and inhalation of sprays, mists, vapors and gases. Do not ingest. Avoid prolonged exposure. Ensure adequate ventilation.

**Protective Measures:** 

Put on appropriate personal protective equipment (see Section 8). Keep in the original container kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**General Occupational Hygiene:** 

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Safe Storage Conditions:** 

Product is moisture sensitive; store under an inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Store in original container protected from direct sunlight in a dry and well-ventilated area, away from incompatible materials noted above and food and drink. Keep container tightly closed and sealed until ready for use. Store locked up.

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## Section 8. Exposure Controls/Personal Protection

Introductory Remarks: These recommendations provide general guidance for handling

this product. Because work environments and material handling practices vary, safety procedures should be developed for each

intended application. While developing safe handling

procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should

be handled in accordance with Section 13.

Occupational Exposure Limits: Product contains no substances with occupational exposure

limit values.

**Engineering Controls:** Properly operating chemical fume hood designed for hazardous

chemicals and having an average face velocity of at least 100

feet per minute. Provide an eyewash/shower station.

**Environmental Exposure Controls:** Emissions from ventilation or work process equipment should

be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable

levels.

**Individual Protection Measures** 

Hygiene Measures: Avoid all unnecessary exposure. Wash all exposed skin (hands,

forearms and face) thoroughly after handling chemical

products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and

contaminated clothing immediately. Do not inhale sprays, gases, vapors or mists. Avoid contact with eyes and skin. Ensure that eyewash stations and safety showers are close to

the workstation location.

**Eye/Face Protection:** Safety eyewear complying with an approved standard should

be used when a risk assessment indicates this is necessary to

avoid exposure to mists, vapors or sprays. If contact is

possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer to 29 CFR

1910.133, ANSI Z87.1, or European Standard EN166.

**Skin Protection** 

Hand Protection: Chemical-resistant, impervious gloves complying with an

approved standard should be worn at all times when handling

chemical products if a risk assessment indicates this is

necessary.

### Section 8. Exposure Controls/Personal Protection

Hand Protection (cont.):

Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Chemical-resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry bands. For full contact, use Neoprepe or pitrile rubber.

hands. For full contact, use Neoprene or nitrile rubber.

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a

specialist before handling this product.

**Respiratory Protection:** 

Other Skin Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Section 9. Physical and Chemical Properties

Physical State: Liquid.

Color: Straw to amber.

Odor: No data available.

Odor Threshold: No data available.

PH: No data available.

Freezing Point: No data available.

Boiling Point: 125 °C (257 °F) @ 1 mm Hg. Flash Point: >110 °C (230 °F) – closed cup.

Flammability: No data available.

Auto-ignition temperature: No data available.

### Section 9. Physical and Chemical Properties

**Relative Density:** No data available.

Vapor Pressure: <0.01.

Vapor Density: No data available.

Water Solubility: Reacts slowly with water to produce flammable gases.

Evaporation Rate:No data available.Viscosity:No data available.VOC Content:No data available.

VOCs are calculated following the requirements under 40 CFR, Part 59, Subpart C for Consumer Products and Subpart D for Architectural Coatings.

### Section 10. Stability and Reactivity

**Reactivity:**This product reacts slowly with water and compounds

containing active hydrogen such as alcohols and acids to

produce flammable and potentially toxic gases.

Chemical Stability: This product is stable when stored under a dry, inert

atmosphere and away from heat. Nitrogen containing less than 5 ppm each moisture and air is recommended. This

product is not sensitive to impact.

**Conditions to Avoid:** Exposure to water/moisture.

Incompatible Materials: Water, compounds containing active hydrogen (alcohols,

acids) and strong oxidizing agents.

Hazardous Decomposition Products: In contact with water, slowly releases flammable and

potentially toxic gases. Hazardous decomposition products formed under fire conditions: ethanol, dimethylaminoethanol, carbon oxides (CO<sub>X</sub>), nitrogen oxides (NO<sub>X</sub>), and tantalum oxide fumes. In the event of

a fire: see section 5.

Possibility of Hazardous Reactions: Under normal conditions of storage and use noted above,

hazardous reactions will not occur. Hazardous reactions or instability may occur under certain conditions of storage or use. In contact with water, product releases

flammable and potentially toxic gases.

### Section 11. Toxicological Information

# Information on Toxicological Effects Acute Toxicity

Component	CAS No	Result	Species	Dose	Exposure
Dimethylaminoethanol	108-01-0	LC50 Inhalation	Rat	6 mg/l	4 h

### Section 11. Toxicological Information

Irritation/Corrosion

: No specific data available. Product may be expected to be irritating to the skin and to cause serious eye

irritation.

Sensitization

: No specific data available. : No specific data available. **Germ Cell Mutagenicity** 

Carcinogenity

**IARC** 

: No component of this product present at levels greater

than 0.1% is identified as probable, possible or

confirmed human carcinogen by IARC.

**ACGIH** 

: No component of this product present at levels greater

than 0.1% is identified as probable, possible or

confirmed human carcinogen by ACGIH.

**NTP** 

: No component of this product present at levels greater

than 0.1% is identified as probable, possible or

confirmed human carcinogen by NTP.

**OSHA** 

: No component of this product present at levels greater

: This product is not expected to cause reproductive or

than 0.1% is identified as probable, possible or

confirmed human carcinogen by OSHA.

**Reproductive Toxicity** 

developmental effects.

**Teratogenicity** 

: No specific data available.

**Specific Target Organ Toxicity** 

(Single Exposure)

: No specific data available. Product may be expected to be irritating to the respiratory system.

**Specific Target Organ Toxicity** 

(Repeated Exposure)

: No specific data available.

Aspiration Hazard

Information on the Likely **Routes of Exposure** 

: No specific data available.

: No specific data available.

**Additional Information** 

: Product may be harmful if ingested, inhaled or in contact

with the skin.

To the best of our knowledge, the chemical, physical and toxicological properties of this product have not

been thoroughly investigated.

## Section 12. Ecological Information

**Numerical Measures of Toxicity** 

: No specific data available. **Toxicity to Fish** 

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### Section 12. Ecological Information

**Toxicity to Daphnia and Other** 

**Aquatic Invertebrates** 

: No specific data available.

**Toxicity to Algae** 

: No specific data available.

Persistence and Degradability

Biodegradability
Bioaccumulative Potential

No specific data available.No specific data available.

**Mobility in Soil** 

: No specific data available.

**Other Adverse Effects** 

: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13. Disposal Considerations

Waste Treatment Methods Product

roduct

**Contaminated Packaging** 

- : Dispose of in accordance with local, state, and federal regulations. Refer to 40 CFR 260-299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals.
- : Empty containers retain product residue (liquids, vapors and gases) and can be dangerous. Dispose of as unused product. DO NOT EXPOSE SUCH CONTAINERS TO MOISTURE, HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

# Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	Not Regulated	Not Regulated	Not Regulated
UN Proper	-	-	-
Shipping Name			
Transport Hazard	-	-	-
Classes			
Packing Group	-	-	-
Environmental	-	-	-
Hazards			
Additional	-	-	-
Information			

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### Section 14. Transport Information

#### **Special Precautions for User**

: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

# Transporting in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

# Section 15. Regulatory Information

#### TSCA (Toxic Substance Control Act):

This product is not listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory). Use of this product is restricted to research and development only. This product must be used under the supervision of a technically qualified individual as defined by the TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes.

#### **SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### **SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

Acute Health Hazard (Acute toxicity – ingestion, inhalation, dermal; Skin corrosion or irritation; Serious eye damage or eye irritation; Specific Target Organ Toxicity (STOT), single exposure: respiratory irritation).

#### **Massachusetts Right to Know Components**

No components are subject to Massachusetts Right to Know Act.

#### Pennsylvania Right to Know Components

No components are subject to Pennsylvania Right to Know Act.

#### **New Jersey Right to Know Components**

No components are subject to New Jersey Right to Know Act.

#### **California Proposition 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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### Section 16. Other Information

#### National Fire Protection Association (U.S.A.)



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Copyright © 2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

#### **HMIS Rating**

HEALTH	3
FLAMMABILITY	1
PHYSICAL HAZARD	1

#### **History**

Date of Printing : 3/22/2020
Date of Issue/Date of Revision : 3/22/2020
Date of Previous Issue : 12/13/19

**References** : None available.

#### **Abbreviations and Acronyms**

ACGIH: American Conference of Governmental Industrial Hygienists.

ATE: Acute Toxicity Estimate

CAS: Chemical Abstracts Service (division of the American Chemical Society).

DOT: US Department of Transportation.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

HMIS: Hazardous Materials Identification System.

IARC: International Agency for Research on Cancer.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA).

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### Section 16. Other Information

#### Abbreviations and Acronyms (cont.)

IDLH: Immediately Dangerous to Life or Health (US National Institute for Occupation Health and Safety (NIOSH)).

IMDG: International Maritime Code for Dangerous Goods.

NFPA: National Fire Protection Association.

NIOSH: National Institute of Occupational Safety and Health.

NTP: National Toxicology Program.

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limits. REL: Recommended Exposure Limits.

SARA: Superfund Amendments and Reauthorization Act.

STOT: Specific Target Organ Toxicity. TLV: Threshold Limit Values (ACGIH).

TWA: Time Weighted Average. VOC: Volatile Organic Compound.

#### **Disclaimer**

The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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