SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Identifier: (4N) 99.99% Pentakis(dimethylamino)tantalum(V)

Product Code: TA-OMX-04

CAS Number: 19824-59-0

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable solids (Category 2), H228
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

2.2 GHS Label elements, including precautionary statements

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>Signal word Danger</th>
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</thead>
<tbody>
<tr>
<td>Hazard statement(s)</td>
<td></td>
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<tr>
<td>H228 Flammable solid.</td>
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<tr>
<td>H260 In contact with water releases flammable gases which may ignite spontaneously.</td>
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<tr>
<td>H314 Causes severe skin burns and eye damage.</td>
<td></td>
</tr>
<tr>
<td>Precautionary statement(s)</td>
<td></td>
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<tr>
<td>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.</td>
<td></td>
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</tbody>
</table>
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
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 and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404 Store in a dry place. Store in a closed container.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS Reacts violently with water.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Formula : C10H30N5Ta
Molecular Weight : 401.33 g/mol
CAS-No. : 19824-59-0
Hazardous components
Component Classification Concentration
Pentakis(dimethylamino)tantalum Flam. Sol. 2; Water-react. 1;
Skin Corr. 1B; Eye Dam. 1;
H228, H260, H314
-

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a
physician.
In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.
Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, nitrogen oxides (NOx), Tantalum Oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.
SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Air sensitive. Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with 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 hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment by a qualified hygienist shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) 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).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance Form: solid
b) Odor no data available
c) Odor Threshold no data available
d) pH no data available
e) Melting point/freezing point
   Melting point/range: 100 °C (212 °F) - dec.
f) Initial boiling point and boiling range
   no data available
g) Flash point no data available
h) Evaporation rate no data available
i) Flammability (solid, gas) no data available
j) Upper/lower flammability or explosive limits
   no data available
k) Vapor pressure no data available
l) Vapor density no data available
m) Relative density no data available
n) Water solubility no data available
o) Partition coefficient: noctanol/water
   no data available
p) Auto-ignition temperature
   no data available
q) Decomposition temperature
   no data available
r) Viscosity no data available
s) Explosive properties no data available
t) Oxidizing properties no data available

9.2 Other safety information
no data available

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available
10.2 Chemical stability
Dimethylamine is formed upon contact with water
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
   Reacts violently with water.
10.4 Conditions to avoid
   Exposure to moisture.
10.5 Incompatible materials
SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
no data available
Inhalation: no data available
Dermal: no data available
no data available
Skin corrosion/irritation
no data available
Serious eye damage/eye irritation
no data available
Respiratory or skin sensitisation
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
no data available
no data available
Specific target organ toxicity - single exposure
no data available
Specific target organ toxicity - repeated exposure
no data available
Aspiration hazard
no data available
Additional Information
RTECS: Not available
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
Cough, Shortness of breath, Headache, Nausea

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available
12.2 Persistence and degradability
no data available
12.3 Bioaccumulative potential
no data available
12.4 Mobility in soil
no data available
12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6 Other adverse effects
no data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in
igniting as this
material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal
company. Contact a
licensed professional waste disposal service to dispose of this material. Dissolve or mix the material
with a
combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
UN number: 3131 Class: 4.3 (8) Packing group: I
Proper shipping name: Water-reactive solid, corrosive, n.o.s. (Pentakis(dimethylamino)tantalum)
Marine pollutant: No
Poison Inhalation Hazard: No
IMDG
UN number: 3131 Class: 4.3 (8) Packing group: I EMS-No: F-G, S-L
Proper shipping name: WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
(Pentakis(dimethylamino)tantalum)
Marine pollutant: No
IATA
UN number: 3131 Class: 4.3 (8) Packing group: I
Proper shipping name: Water-reactive solid, corrosive, n.o.s. (Pentakis(dimethylamino)tantalum)
IATA Passenger: Not permitted for transport

SECTION 15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III,
Section 302.
SARA 313 Components
SARA 313: 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
Reactivity Hazard, Acute Health Hazard
Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components
Pentakis(dimethylamino)tantalum
CAS-No.
19824-59-0
Revision Date
New Jersey Right To Know Components
Pentakis(dimethylamino)tantalum
CAS-No.
19824-59-0
Revision Date
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION
Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). 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. American Elements 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 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.