SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Tetrakis(ethylmethylamido)titanium(IV)

Product Code: TEMA-TI-05

CAS Number: 308103-54-0

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

Classification of the substance or mixture

GHS02 Flame
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.
GHS05 Corrosion
Skin Corr. 1A H314 Causes severe skin burns and eye damage.

The substance is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms
GHS02 GHS05

Signal word Danger

Hazard statements
H225 Highly flammable liquid and vapor.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H314 Causes severe skin burns and eye damage.

Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS # / Substance Name
308103-54-0 Tetrakis(ethylmethylamino)titanium, 99%

SECTION 4. FIRST AID MEASURES

Description of first aid measures
General information: Immediately remove any clothing soiled by the product.
If inhaled: In case of unconsciousness place patient stably in side position for transportation.
In case of skin contact: Immediately wash with soap and water; rinse thoroughly.
In case of eye contact: Rinse opened eye for several minutes under running water. Consult a
If swallowed: Drink copious amounts of water and provide fresh air. Immediately call a doctor.

Most important symptoms and effects, both acute and delayed:
No data available

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

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.
For safety reasons unsuitable extinguishing agents: Water with full jet
Special hazards arising from the substance or mixture No data available
Advice for firefighters
Protective equipment: No special measures required.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Keep unprotected persons away.
Environmental precautions:
Do not allow product to enter drains, sewage systems, or other water courses.
Inform respective authorities in case of seepage into water courses, or sewage systems.
Do not allow to enter sewers/ surface or groundwater.
Methods and materials for containment and cleanup:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Conditions for safe storage, including any incompatibilities: Keep cool.
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Recommended storage temperature: Store at temperatures not exceeding -18 °C.
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems: No further data; see item 7.
Control parameters
Components with limit values that require monitoring at the workplace: Not required.
Additional information: The lists that were valid during the creation were used as basis.
Exposure controls
Personal protective equipment:
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
Protection of hands:
`SProtective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection:
`RTightly sealed goggles

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance:
Form: Liquid
Color: Orange
Odor: Odorless
Odor threshold: No data available.
pH: No data available.
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 80 °C (176 °F)
Flash point: 2 °C (36 °F)
**Flammability (solid, gas): N/A**

**Ignition temperature:**

**Decomposition temperature:** No data available.

**Autoignition:** Spontaneously flammable in air.

**Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

**Explosion limits:**

- Lower: No data available.
- Upper: No data available.

**Vapor pressure:** No data available.

**Density at 20 °C (68 °F):** 0.923 g/cm$^3$ (7.702 lbs/gal)

**Relative density** No data available.

**Vapor density** No data available.

**Evaporation rate** No data available.

**Solubility in / Miscibility with**

- Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): No data available.

**Viscosity:**

- Dynamic: No data available.
- Kinematic: No data available.

**Organic solvents:** 0.0 %

**Other information** No data available

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**SECTION 10. STABILITY AND REACTIVITY**

**Reactivity**

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** Contact with water releases flammable gases.

**Conditions to avoid** No data available

**Incompatible materials:** No data available

**Hazardous decomposition products:** No dangerous decomposition products known.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

**Information on toxicological effects**

**Acute toxicity:**

**Primary irritant effect:**

- on the skin: Strong caustic effect on skin and mucous membranes.
- on the eye: Strong caustic effect.

**Sensitization:** No sensitizing effects known.

**Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**Carcinogenic categories**

- IARC (International Agency for Research on Cancer)
  Substance is not listed.
- NTP (National Toxicology Program)
  Substance is not listed.
SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity: No data available
Persistence and degradability No data available
Bioaccumulative potential No data available
Mobility in soil No data available
Additional ecological information:
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach groundwater, water courses, or sewage systems.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A
Other adverse effects No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to enter drains, sewage systems, or other water courses system.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA UN3399
UN proper shipping name
DOT Organometallic substance, liquid, water-reactive, flammable
IMDG, IATA ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Transport hazard class(es)
DOT
Class 4.3 Substances which, in contact with water, emit flammable gases
Label 4.3+3
IMDG, IATA
Class 4.3 Substances which, in contact with water, emit flammable gases
Label 4.3+3
Packing group
DOT, IMDG, IATA I
Environmental hazards:
Marine pollutant: No
Special precautions for user Warning: Substances which, in contact with water, emit flammable gases
EMS Number: F-G,S-M
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A
Transport/Additional information:
DOT
Quantity limitations On passenger aircraft/rail: Forbidden
On cargo aircraft only: 1 L
UN "Model Regulation": UN3399, Organometallic substance, liquid, water-reactive, flammable, 4.3 (3), I

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara
Section 355 (extremely hazardous substances):
Substance is not listed.
Section 313 (Specific toxic chemical listings):
Substance is not listed.
TSCA (Toxic Substances Control Act):
Substance is not listed.
Proposition 65
Chemicals known to cause cancer:
Substance is not listed.
Chemicals known to cause reproductive toxicity for females:
Substance is not listed.
Chemicals known to cause reproductive toxicity for males:
Substance is not listed.
Chemicals known to cause developmental toxicity:
Substance is not listed.
Carcinogenic categories
EPA (Environmental Protection Agency)
Substance is not listed.
TLV (Threshold Limit Value established by ACGIH)
Substance is not listed.
NIOSH-Ca (National Institute for Occupational Safety and Health)
Substance is not listed.
GHS label elements
The substance is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms
GHS02 GHS05
Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapor.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H314 Causes severe skin burns and eye damage.
Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.
P231+P232 Handle under inert gas. Protect from moisture.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin
with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P422 Store contents under inert gas.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
National regulations:
Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.