

## SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: **Tert-butylimido tris(diethylamido) niobium**

FORMULA:  $C_{16}H_{39}N_4Nb$

CAS NO: 210363-27-2

SYNONYMS: Tris(diethylamido) tert-butylimido niobium

Intended Use: For R&D use only.

#### MANUFACTURER:

NOVA-KEM  
N115 W19392 EDISON DRIVE  
GERMANTOWN, WI 53022, USA

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FAX: +1-262-253-1258

IN CASE OF TRANSPORTATION EMERGENCY CONTACT CHEM-TREC 1-800-424-9300  
CHEM-TREC INTERNATIONAL: +1-703-741-5500

FOR TECHNICAL INFORMATION CONTACT: +1-262-293-0251

### SECTION 2 HAZARDS IDENTIFICATION

#### CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

OSHA HAZARDS: Combustible Liquid, Water Reactive, Corrosive

#### GHS CLASSIFICATION:

Flammable liquids (category 2)

Substances which, in contact with water, emit flammable gases (category 2)

Eye irritation (Category 2A)

Specific target organ toxicity- single exposure (Category 3), respiratory system

Pictogram



## SECTION 2 HAZARDS IDENTIFICATION (Cont.)

Signal Word **Danger**  
Hazard Statements

H225	Highly flammable liquid and vapor
H261	In contact with water releases flammable gas
H319	Causes serious eye irritation
H335	May cause respiratory irritation

### Precautionary Phrases

P210	Keep away from heat/spark/open flame/ hot surfaces. No smoking
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
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P241	Use explosion proof electrical/ ventilating/ lighting/ equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash skin thoroughly after handling
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P303 + P361 + P353	IF ON SKIN: Remove 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
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages
P337 + P313	If eye irritation persists, Get medical attention
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.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### OTHER HAZARDS

Reacts violently with water.

### NFPA 704 RATINGS (SCALE 0-4):

Health: 2

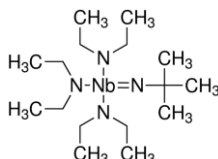
Flammability: 3

Reactivity: 1

SPECIAL: WATER REACTIVE

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name: Tert-butylimido tris(diethylamido) niobium  
Synonyms: Tris(diethylamido) tert-butylimido niobium  
Formula: C<sub>16</sub>H<sub>39</sub>N<sub>4</sub>Nb  
CAS #: 210363-27-2  
Molecular weight: 380.41 g/mol



## SECTION 4 FIRST AID MEASURES

**GENERAL ADVICE:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**EYE EXPOSURE:** Rinse thoroughly with plenty of water for at least 15 minutes. A victim may need help keeping their eyelids open. Seek medical attention.

**SKIN EXPOSURE:** Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Seek medical attention.

**INHALATION:** Move victim into fresh air. If not breathing, give artificial respiration. Seek medical attention.

**INGESTION:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

## **SECTION 5    FIREFIGHTING MEASURES**

### **EXTINGUISHING MEDIA:**

Suitable            Use dry chemical.  
Unsuitable        DO NOT USE WATER!

### **CONDITIONS OF FLAMMABILITY:**

Flammable in the presence of a source of ignition when the temperature is above the flash point. May burn in presence of air, or emit a flammable gas in the presence of water or water vapor. Keep away from heat/sparks/open flame/hot surface/air/water. No smoking.

### **HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS:**

Carbon oxides, nitrogen oxides (NO<sub>x</sub>), and Niobium oxides

### **ADVICE FOR FIRE FIGHTERS**

Wear self-contained breathing apparatus for firefighting if necessary.

## **SECTION 6    ACCIDENTAL RELEASE MEASURES**

### **PERSONAL PRECAUTIONS**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

### **ENVIRONMENTAL PRECAUTIONS**

Prevent further leakage or spillage if safe to do so. Do not allow material to enter drains or streams.

### **METHODS AND MATERIALS**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.

## **SECTION 7    HANDLING AND STORAGE**

### **PERSONAL PRECAUTIONS**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Use explosion-proof equipment. Keep away from sources of ignition – No smoking. Take measures to prevent the buildup of electrostatic charge.

### **CONDITIONS FOR SAFE STORAGE**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Never allow product to get in contact with water during storage.

Handle and store under inert gas. Air sensitive.

### **INCOMPATIBILITIES:**

Exposure to air, moisture.

## **SECTION 8    EXPOSURE CONTROLS AND PERSONAL PROTECTION**

### **COMPONENTS WITH WORKPLACE CONTROL PARAMETERS**

Contains no substances with occupational exposure limit values.

### **PERSONAL PROTECTIVE EQUIPMENT**

**RESPIRATORY PROTECTION:** Use a full-face air-purifying respirator with multi-purpose combination or type ABEK 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.

## SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION (Cont.)

**EYE/FACE PROTECTION:** Wear chemical safety glasses, faceshield. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN.

**SKIN PROTECTION:** Compatible chemical-resistant gloves. Inspect gloves before each use. Use proper glove removal technique 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 antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**COLOR AND FORM:** Yellow liquid

**FORMULA MASS:** 380.41 g/mol

**ODOR:** No data available

**ODOR THRESHOLD:** No data available

**pH:** No data available

**MELTING POINT/ FREEZING POINT:** No data available

**BOILING POINT:** 108-109 °C @ 1.5 Torr

**FLASH POINT:** -3 °C – closed cup

**EVAPORATION RATE:** No data available

**UPPER/LOWER FLAMMABILITY/EXPLOSION LIMITS:** No data available

**VAPOR PRESSURE:** 1 Torr @ 91°C

**VAPOR DENSITY:** No data available

**SPECIFIC GRAVITY:** 1.015 g/cm<sup>3</sup>

**SOLUBILITY IN WATER:** Reacts violently

**PARTITION COEFFICIENT: N-OCTANOL/WATER:** No data available

**AUTO-IGNITION TEMPERATURE:** No data available

**DECOMPOSITION:** No data available

**VISCOSITY:** No data available

## SECTION 10 STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable under recommended storage conditions.

**POSSIBILITY OF HAZARDOUS REACTION:** Will not polymerize. Reacts violently with water. Vapors may form explosive mixture with air.

**CONDITIONS TO AVOID:** Heat, flame, and sparks. Extremes of temperature and direct sunlight. Exposure to moisture.

**INCOMPATIBLE MATERIALS:** Water, acids, alcohols, oxygen, polyethylene, polypropylene, carbon steel

**HAZARDOUS DECOMPOSITION PRODUCTS:** (formed under fire conditions) Carbon oxides, nitrogen oxides (NO<sub>x</sub>), and Niobium oxides

## SECTION 11 TOXICOLOGICAL DATA

**ACUTE TOXICITY:** No data available.

**SKIN CORROSIVE/IRRITANT:** No data available

**SERIOUS EYE DAMAGE/IRRITATION:** No data available

**RESPIRATORY OR SKIN SENSITIZATION:** 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

**STOT-Single Exposure:** Inhalation – May cause respiratory irritation

**STOT-Repeated Exposure:** No data available

**ASPIRATION HAZARD:** No data available

**ADDITIONAL INFORMATION:** No data available

## SECTION 12 ECOLOGICAL DATA

**TOXICITY:** No data available

**PERSISTENCE AND DEGRADABILITY:** No data available

**BIOACCUMULATIVE POTENTIAL:** No data available

**MOBILITY IN SOIL:** No data available

**OTHER ADVERSE EFFECTS:** No data available

## SECTION 13 DISPOSAL CONSIDERATIONS

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 waste disposal service to dispose of this material.

Dispose of contaminated packaging as unused product.

## SECTION 14 TRANSPORTATION DATA

DOT, IATA, IMDG regulated.

Organometallic substance, liquid, water-reactive, flammable (tert-butylimido tris(diethylamido) niobium(V))

UN3399

Class 4.3(3)

PG: II

Marine pollutant: No

Poison inhalation hazard: No

## SECTION 15 REGULATORY INFORMATION

### OSHA Hazards:

Combustible liquid, water reactive, corrosive.

### SARA 302/313 Components:

No chemicals in this material are subject to reporting requirements of SARA Title III, Section 302 or 313.

### SARA 311/312 Hazards

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

### Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right to Know/New Jersey Right to Know Components

Tert-butylimido tris(diethylamido)niobium CAS# 210363-27-2

### 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.

## SECTION 16 OTHER INFORMATION

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

DATE PREPARED: 05/2016

SDS DEPT