

### **TERBIUM ACETATE**, hydrate

Safety Data Sheet CXTB010 Date of issue: 11/01/2016 Version Version: 1.0

| Enabling | Your | Technology |
|----------|------|------------|
|          |      |            |

| SECTION 1: Identification   |  |
|---|--|
| 1.1. Product identifier   |  |
| Product name  | : TERBIUM ACETATE, hydrate   |
| Product code  | : CXTB010  |
| Product form  | : Substance  |
| Physical state  | : Solid  |
| Formula   | : C6H9O6Tb xH2O  |
| Synonyms  | : ACETIC ACID, TERBIUM(3+) SALT  |
| Chemical family   | : RARE EARTH COMPOUND  |
| 1.2. Recommended use of the chemical  |  |
| Recommended use   | : Chemical intermediate  |
| Recommended use   | For research use only  |
| 1.3. Details of the supplier of the safety  | data sheet   |
| <b>GELEST, INC.</b><br>11 East Steel Road<br>Morrisville, PA 19067<br><b>USA</b><br>T 215-547-1015 - F 215-547-2484 - (M-F): 8:00<br>info@gelest.com - www.gelest.com | AM - 5:30 PM EST   |
| 1.4. Emergency telephone number   |  |
| Emergency number  | : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)  |
| SECTION 2: Hazard(s) identification   |  |
| 2.1. Classification of the substance or n   | nixture  |
| GHS-US classification   |  |
|   | H319   |
| Serious eye damage/eye irritation Category 2A<br>Full text of H statements : see section 16   |  |
| 2.2. Label elements   |  |
| GHS-US labeling   |  |
| Hazard pictograms (GHS-US)  | GHS07  |
| Signal word (GHS-US)  | : Warning  |
| Hazard statements (GHS-US)  | : H319 - Causes serious eye irritation   |
| Precautionary statements (GHS-US)   | <ul> <li>P280 - Wear protective gloves/protective clothing/eye protection/face protection<br/>P264 - Wash hands thoroughly after handling<br/>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove<br/>contact lenses, if present and easy to do. Continue rinsing<br/>P337 + P313 - If eye irritation persists: Get medical advice/attention</li> </ul> |
| 2.3. Hazards not otherwise classified (H  | NOC)   |
| No additional information available   |  |
| 2.4. Unknown acute toxicity (GHS US)  |  |
| No data available   |  |
| <b>SECTION 3: Composition/Information</b>   | on on ingredients  |
| 3.1. Substance  |  |
| Substance type  | : Mono-constituent   |
| Name  | : TERBIUM ACETATE, hydrate   |
| CAS No  | : 100587-92-6  |
|   |  |

| Name                     | Product identifier   | %        | GHS-US classification |
|--------------------------|----------------------|----------|-----------------------|
| Terbium acetate, hydrate | (CAS No) 100587-92-6 | 95 - 100 | Eye Irrit. 2A, H319   |

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| Full text of hazard classes and H-statements         | : see section 16  |
|--|---|
| 3.2. Mixture   |   |
| Not applicable                                       |   |
| 4.1. Description of first aid measures               |   |
| First-aid measures general                           | : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if no available show packaging or label. |
| First-aid measures after inhalation                  | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.   |
| First-aid measures after skin contact                | : Wash with plenty of soap and water. Get medical advice/attention.   |
| First-aid measures after eye contact                 | : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, present and easy to do. Continue rinsing. Get medical advice/attention.  |
| First-aid measures after ingestion                   | : Never give anything by mouth to an unconscious person. Get medical advice/attention.  |
| 4.2. Most important symptoms and e                   | ffects, both acute and delayed  |
| Symptoms/injuries after inhalation                   | : May cause irritation to the respiratory tract.  |
| Symptoms/injuries after skin contact                 | : May cause skin irritation.  |
| Symptoms/injuries after eye contact                  | : Causes serious eye irritation.  |
| Symptoms/injuries after ingestion                    | : No information available.   |
|  | lical attention and special treatment needed  |
| No additional information available                  |   |
| SECTION 5: Firefighting measure                      | S   |
| 5.1. Extinguishing media                             |   |
| Suitable extinguishing media                         | : Water spray. Foam. Carbon dioxide. Dry chemical.  |
| Jnsuitable extinguishing media                       | : None known.   |
| 5.2. Special hazards arising from the                | substance or mixture  |
| Fire hazard  | : Irritating fumes and organic acid vapors may develop when material is exposed to elevated   |
|  | temperatures or open flame.   |
| 5.3. Advice for firefighters                         |   |
| Firefighting instructions                            | : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.   |
| Protection during firefighting                       | : Do not enter fire area without proper protective equipment, including respiratory protection.<br>Avoid contact with skin and eyes. Do not breathe dust.   |
| SECTION 6: Accidental release m                      | easures   |
| 6.1. Personal precautions, protective                | e equipment and emergency procedures  |
| 6.1.1. For non-emergency personnel                   |   |
| Protective equipment                                 | : Wear protective equipment as described in Section 8.  |
| Emergency procedures                                 | : Evacuate unnecessary personnel.   |
|  |   |
| 6.1.2. For emergency responders Protective equipment | : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".                      |
| 6.2. Environmental precautions                       |   |
| Prevent entry to sewers and public waters. N         | lotify authorities if product enters sewers or public waters.   |
| 6.3. Methods and material for contain                | nment and cleaning up   |
| For containment                                      | <ul> <li>Contain any spills with dikes or absorbents to prevent migration and entry into sewers or<br/>streams.</li> </ul>  |
| Methods for cleaning up                              | : Sweep or shovel spills into appropriate container for disposal.   |
| 6.4. Reference to other sections                     |   |
| See Heading 8. Exposure controls and perso           | onal protection.  |
| <b>.</b>   | •   |
| SECTION 7: Handling and storage                      |   |
| 7.1. Precautions for safe handling                   | Avoid contact with align and avon. Do not breather dust Avoid dust formation. Devoids level   |
| Precautions for safe handling                        | : Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.  |
| Hygiene measures                                     | : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild   |
|  |   |

| Storage conditions                          | <ul><li>Keep container tightly closed.</li><li>Store in a well-ventilated place. Store away from heat.</li></ul>  |  |
|---|---|--|
| Storage area                                |   |  |
| SECTION 8: Exposure controls/pe             | rsonal protection   |  |
| 3.1. Control parameters                     |   |  |
| Terbium acetate, hydrate (100587-92-6)      |   |  |
| ACGIH ACGIH TW                              | A (mg/m³) 1 mg/m³ Terbium compounds   |  |
|   |   |  |
| 3.2. Exposure controls                      |   |  |
| Appropriate engineering controls            | : Provide local exhaust or general room ventilation.  |  |
| Personal protective equipment               | : Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should available in the immediate vicinity of any potential exposure.             |  |
| Hand protection                             | : Neoprene or nitrile rubber gloves.  |  |
| Eye protection                              | : Chemical goggles. Contact lenses should not be worn.  |  |
| Skin and body protection                    | : Wear suitable protective clothing.  |  |
| Respiratory protection                      | : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (teal cartridge) respirator. |  |
| SECTION 9: Physical and chemica             | I properties  |  |
| 9.1. Information on basic physical an       | I chemical properties   |  |
| Physical state                              | : Solid   |  |
| Appearance                                  | : Crystals.   |  |
| Molecular mass                              | : 336.06 g/mol  |  |
| Color                                       | : White to off-white.   |  |
| Ddor  | : characteristic. Mild.   |  |
| Odor threshold                              | : No data available   |  |
| Refractive index                            | : No data available   |  |
| Н   | : No data available   |  |
| Relative evaporation rate (butyl acetate=1) | : No data available   |  |
| Melting point                               | : No data available   |  |
| Freezing point                              | : No data available   |  |
| Boiling point                               | : No data available   |  |
| Flash point                                 | : No data available   |  |
| Auto-ignition temperature                   | : No data available   |  |
| Decomposition temperature                   | : No data available   |  |
| Flammability (solid, gas)                   | : No data available   |  |
| /apor pressure                              | : <1 mm Hg @ 25°C   |  |
| Relative vapor density at 20 °C             | : No data available   |  |
| Relative density                            | : >1  |  |
| /OC content                                 | : <3%   |  |
| Solubility                                  | : Slightly. Soluble in water.   |  |
| Log Pow                                     | : No data available   |  |
| Log Kow                                     | : No data available   |  |
| /iscosity, kinematic                        | : No data available   |  |
| /iscosity, dynamic                          | : No data available   |  |
| Explosive properties                        | : No data available   |  |
| Oxidizing properties                        | : No data available   |  |
| Explosion limits                            | : No data available   |  |
| 0.2. Other information                      |   |  |

### **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

No additional information available

| 10.2. Chemical stability                           |  |
|--|--|
| Stable.  |  |
| 10.3. Possibility of hazardous reactions           |  |
| Material decomposes slowly in contact with air b   | by reaction with water and carbon dioxide.   |
| 10.4. Conditions to avoid                          |  |
| No additional information available                |  |
| 10.5. Incompatible materials                       |  |
| No additional information available                |  |
| 10.6. Hazardous decomposition products             | 3  |
| Organic acid vapors. Terbium oxide fumes.          |  |
| <b>SECTION 11: Toxicological informat</b>          | tion   |
| 11.1. Information on toxicological effects         |  |
| Acute toxicity                                     | : Not classified   |
| Skin corrosion/irritation                          | : Not classified   |
| Serious eye damage/irritation                      | : Causes serious eye irritation.   |
| Respiratory or skin sensitization                  | : Not classified   |
| Germ cell mutagenicity                             | : Not classified   |
| Carcinogenicity                                    | : Not classified   |
|  | None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen                                      |
| Reproductive toxicity                              | : Not classified   |
| Specific target organ toxicity (single exposure)   | : Not classified   |
|  |  |
| Specific target organ toxicity (repeated exposure) | : Not classified   |
| Aspiration hazard                                  | : Not classified   |
| Symptoms/injuries after inhalation                 | : May cause irritation to the respiratory tract.   |
| Symptoms/injuries after skin contact               | : May cause skin irritation.   |
| Symptoms/injuries after eye contact                | : Causes serious eye irritation.   |
| Symptoms/injuries after ingestion                  | : No information available.  |
| Reason for classification                          | : Expert judgment  |
| <b>SECTION 12: Ecological information</b>          |  |
| 12.1. Toxicity                                     |  |
| No additional information available                |  |
| 12.2. Persistence and degradability                |  |
| No additional information available                |  |
| 12.3. Bioaccumulative potential                    |  |
| No additional information available                |  |
| 12.4. Mobility in soil                             |  |
| No additional information available                |  |
|  |  |
| 12.5. Other adverse effects                        |  |
| Effect on ozone layer                              | : No additional information available  |
| Effect on the global warming                       | : No known effects from this product.  |
| GWPmix comment                                     | : No known effects from this product.  |
|  |  |
| SECTION 13: Disposal consideratio                  | ns   |
| 13.1. Waste treatment methods                      |  |
| Sewage disposal recommendations                    | : Do not dispose of waste into sewer.  |
| Waste disposal recommendations                     | <ul> <li>Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in<br/>accordance with local/national regulations.</li> </ul> |
|  | -  |

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: Avoid release to the environment.

| SECTION 14: Transport information  | on  |  |
|--|---|--|
| 14.1. UN number  |   |  |
| Not regulated for transport.   |   |  |
| 14.2. UN proper shipping name  |   |  |
| Not applicable   |   |  |
|  |   |  |
| 14.3. Additional information   |   |  |
| Other information  | : No supplementary information available.   |  |
| Transport by sea   |   |  |
| No additional information available  |   |  |
| Air transport  |   |  |
| No additional information available  |   |  |
| SECTION 15: Regulatory information   | ion   |  |
| 15.1. US Federal regulations   |   |  |
| TERBIUM ACETATE, hydrate (100587-92  | -6)   |  |
| TSCA Exemption/Exclusion   | CAUTION: This material is supplied for research and development<br>purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and<br>must meet the requirements of the exemption, including supervision by a<br>"technically qualified individual" as defined by 40 CFR 720.3(ee). The use<br>of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is<br>not permitted in the United States   |  |
| Tarkium asstata, kudrata (100597.02.6)   |   |  |
| Terbium acetate, hydrate (100587-92-6)<br>Not listed on the United States TSCA (Toxi   | c Substances Control Act) inventory   |  |
| Not listed on the onited States TSCA (TOX  | C Substances Control Act) Inventory   |  |
|  |   |  |
| 15.2. International regulations<br>CANADA<br>No additional information available<br>EU-Regulations<br>No additional information available<br>National regulations<br>No additional information available |   |  |
| 15.3. US State regulations   |   |  |
| No additional information available  |   |  |
|  |   |  |
| SECTION 16: Other information  |   |  |
|  |   |  |
| Full text of H-phrases::<br>H319   | Causes serious eve irritation   |  |
| Abbreviations and acronyms   | Causes serious eye irritation         acronyms       : Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemcial Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling. |  |
| HMIS III Rating<br>Health  | : 2 Moderate Hazard - Temporary or minor injury may occur   |  |
| Flammability   | <ul> <li>2 Moderate Hazard - Temporary or minor injury may occur</li> <li>1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids,</li> </ul>   |  |
|  | solids and semi solids having a flash point above 200 F. (Class IIIB)   |  |
| Physical   | : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.   |  |
|  |   |  |

Prepared by safety and environmental affairs.

### **TERBIUM ACETATE**, hydrate

Safety Data Sheet

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SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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