

**Safety Data Sheet**  
according to OSHA HCS

Printing date 07/30/2016

Reviewed on 07/30/2016

**1 Identification**

- **Product name**
- **Trade name:** Tris(cyclopentadienyl)samarium (99.9%-Sm) (REO)
- **Item number:** 62-3500
- **CAS Number:**  
1298-55-1
- **EC number:**  
215-075-7
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**  
EMERGENCY: CHEMTREC: + 1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Sol. 1 H228 Flammable solid.

- **Label elements**
- **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02

- **Signal word** Danger
- **Hazard statements**  
H228 Flammable solid.
- **Precautionary statements**  
P231+P232 Handle under inert gas. Protect from moisture.  
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P222 Do not allow contact with air.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P422 Store contents under inert gas.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = 0
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
1298-55-1 Tris(cyclopentadienyl)samarium (99.9%-Sm) (REO)
- **Identification number(s)**
- **EC number:** 215-075-7

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.

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- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **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.

### 7 Handling and storage

- **Handling:** Handle under inert gas.
- **Precautions for safe handling** Open and handle receptacle with care.
- **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**
- **Storage:** Store contents under inert gas.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **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.
- **Specific end use(s)** No further relevant information available.

### 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.  
Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective 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.

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**· 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: Safety glasses**

## 9 Physical and chemical properties

**· Information on basic physical and chemical properties**
**· General Information**
**· Appearance:**
**Form:** Powder

**Color:** Orange

**· Odor:** Odorless

**· Odor threshold:** Not determined.

**· pH-value:** Not applicable.

**· Change in condition**
**Melting point/Melting range:** 356 °C (673 °F)

**Boiling point/Boiling range:** no data °C

**· Flash point:** Not applicable.

**· Flammability (solid, gaseous):** Flammable.

**· Ignition temperature:**
**Decomposition temperature:** Not determined.

**· Auto igniting:** Not determined.

**· Danger of explosion:** Not determined.

**· Explosion limits:**
**Lower:** Not determined.

**Upper:** Not determined.

**· Vapor pressure:** no data hPa

**· Density:** Not determined.

**· Relative density** Not determined.

**· Vapor density** Not applicable.

**· Evaporation rate** Not applicable.

**· Solubility in / Miscibility with**
**Water:** Insoluble.

**· Partition coefficient (n-octanol/water):** Not determined.

**· Viscosity:**
**Dynamic:** Not applicable.

**Kinematic:** Not applicable.

**· Solvent content:**
**Organic solvents:** 0.0 %

**VOC content:** 0.0 g/l / 0.00 lb/gl

**Solids content:** 100.0 %

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· **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

· <b>UN-Number</b>	UN1325
· <b>DOT, IMDG, IATA</b>	
· <b>UN proper shipping name</b>	Flammable solids, organic, n.o.s.
· <b>DOT, IATA</b>	FLAMMABLE SOLID, ORGANIC, N.O.S.
· <b>IMDG</b>	
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	4.1 Flammable solids, self-reactive substances and solid desensitised explosives
· <b>Label</b>	4.1
· <b>IMDG</b>	
	
· <b>Class</b>	4
· <b>Label</b>	4.1
· <b>IATA</b>	
	
· <b>Class</b>	4.1 Flammable solids, self-reactive substances and solid desensitised explosives
· <b>Label</b>	4.1
· <b>Packing group</b>	
· <b>DOT, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>EMS Number:</b>	F-A,S-G

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- |  |  |
|--|--|
| · <b>Stowage Category</b>  | <i>B</i>   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | <i>Not applicable.</i>   |
| · <b>Transport/Additional information:</b>                                       |  |
| · <b>DOT</b>   |  |
| · <b>Quantity limitations</b>  | <i>On passenger aircraft/rail: 15 kg<br/>On cargo aircraft only: 50 kg</i> |
| · <b>UN "Model Regulation":</b>  | <i>UN 1325 FLAMMABLE SOLIDS, ORGANIC, N.O.S., 4.1, II</i>                  |

## 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**



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- **Signal word** *Danger*
- **Hazard statements**  
*H228 Flammable solid.*
- **Precautionary statements**  
*P231+P232 Handle under inert gas. Protect from moisture.*  
*P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.*  
*P222 Do not allow contact with air.*  
*P403+P233 Store in a well-ventilated place. Keep container tightly closed.*  
*P422 Store contents under inert gas.*  
*P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*
- **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing SDS:** *Technical Department.*
- **Contact:** *Technical Director*
- **Date of preparation / last revision** *07/30/2016 / -*
- **Abbreviations and acronyms:**  
*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*DOT: US Department of Transportation*  
*IATA: International Air Transport Association*  
*ACGIH: American Conference of Governmental Industrial Hygienists*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*NFPA: National Fire Protection Association (USA)*  
*HMIS: Hazardous Materials Identification System (USA)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*NIOSH: National Institute for Occupational Safety*  
*OSHA: Occupational Safety & Health*  
*TLV: Threshold Limit Value*  
*PEL: Permissible Exposure Limit*  
*REL: Recommended Exposure Limit*  
*Flam. Sol. 1: Flammable solids, Hazard Category 1*

US