Printing date 07/16/2021

Reviewed on 07/14/2021

# **1** Identification

- · Product name
- · Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%
- Item number: 22-0180
- CAS Number: 12129-51-0
- · 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

 $\cdot$  Classification of the substance or mixture



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



### · Signal word Danger

#### • Hazard statements

H228 Flammable solid.

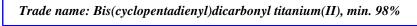
- · Precautionary statements
- P231 Handle under inert gas.
- *P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  P422 Store contents under inert gas.
- P501
   Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

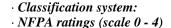
US

Printing date 07/16/2021

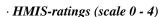
Reviewed on 07/14/2021



(Contd. of page 1)









- · 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
- 12129-51-0 Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

# 4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- 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: Use fire fighting measures that suit the environment.
- · 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.*
- · Environmental precautions: No special measures required.

(Contd. on page 3)

US

Printing date 07/16/2021

Reviewed on 07/14/2021

(Contd. of page 2)

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

- 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.
- · Protective Action Criteria for Chemicals
- PAC-1:

Substance is not listed.

· PAC-2:

Substance is not listed.

· PAC-3:

Substance is not listed.

# 7 Handling and storage

- · Handling: Handle under inert gas.
- *Precautions for safe handling* Ensure good ventilation/exhaustion at the workplace. 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.
- 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. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work.
- Breathing equipment: A NIOSH approved respirator in accordance with 29 CFR 1910.134.
- · Protection of hands:



Protective gloves

(Contd. on page 4)

Printing date 07/16/2021

CHEMICALS, INC

Reviewed on 07/14/2021

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

(Contd. of page 3)

US

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  $\cdot$  *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: Safety glasses

Information on basic physical and	chemical properties	
General Information	chemical properties	
Appearance:		
Form:	Crystalline	
Color:	Red-brown	
Odor:	undistinguishable	
Odor threshold:	Not determined.	
pH-value:	Not applicable.	
Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	Undetermined.	
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:	Not applicable.	
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/wat	er): Not determined.	
Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	

Printing date 07/16/2021

CHEMICALS.

Reviewed on 07/14/2021

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

	(Contd. of page
<ul> <li>Solvent content: Organic solvents: VOC content:</li> </ul>	0.0 % 0.0 g/l / 0.00 lb/gl
Solids content: • Other information	100.0 % 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.

(Contd. on page 6)

<sup>–</sup> US

Printing date 07/16/2021

Reviewed on 07/14/2021

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

(Contd. of page 5)

 $\cdot$  Other adverse effects No further relevant information available.

# **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.

UN-Number DOT, IMDG, IATA	UN1325
· UN proper shipping name	
$\cdot DOT$	Flammable solids, organic, n.o.s.
· IMDG, IATA	FLAMMABLE SOLID, ORGANIC, N.O.S.
· Transport hazard class(es)	
·DOT	
ничети	
· Class	4.1 Flammable solids, self-reactive substances and solides desensitised explosives
· Label	4.1
· IMDG	
· Class	4
· Label	4.1
· Class	4.1 Flammable solids, self-reactive substances and soli desensitised explosives
· Label	4.1
· Packing group · DOT, IMDG, IATA	II
· Environmental hazards:	
• Marine pollutant:	No



Printing date 07/16/2021

CHEMICALS, INC

Reviewed on 07/14/2021

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%

	(Contd. of page
Special precautions for user	Not applicable.
EMS Number:	$F-A, \hat{S-G}$
Stowage Category	В
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 15 kg
	On cargo aircraft only: 50 kg
	UN 1325 FLAMMABLE SOLIDS, ORGANIC, N.O.S., 4.1, II

## **15 Regulatory information**

 $\cdot$  Safety, health and environmental regulations/legislation specific for the substance or mixture  $\cdot$  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).

(Contd. on page 8)

Printing date 07/16/2021

CHEMICALS, INC

Reviewed on 07/14/2021

(Contd. of page 7)

Trade name: Bis(cyclopentadienyl)dicarbonyl titanium(II), min. 98%		
. ]	azard pictograms	

$\sim$	
GHS02	
· Signal word Da	anger
· Hazard statem	ents
H228 Flammal	ole solid.
· Precautionary	statements
P231	Handle under inert gas.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+P351+P	338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present
	and easy to do. Continue rinsing.
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 07/16/2021 / -
- 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

- 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 Category 1