Printing date 07/30/2016

Reviewed on 07/30/2016

1 Identification

- · Product name
- · Trade name: Bis(2-methylindenyl)zirconium dichloride, 98%
- Item number: 40-1042
- CAS Number: 165688-64-2
- \cdot 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



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage. Eye Dam. 1 H318 Causes serious eye damage.

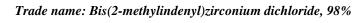
- · Label elements
- · GHS label elements
- *The substance is classified and labeled according to the Globally Harmonized System (GHS). Hazard pictograms*



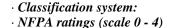
- · Signal word Danger
- Hazard-determining components of labeling: Bis(2-methylindenyl)zirconium dichloride, 98%
- Hazard statements
- H314 Causes severe skin burns and eye damage.
- · Precautionary statements
- P231 Handle under inert gas.
- P303+P361+P353 If on skin (or hair): Take off immediately 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.
- 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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- · 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
- 165688-64-2 Bis(2-methylindenyl)zirconium dichloride, 98%

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a 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:
- CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- \cdot Special hazards arising from the substance or mixture
- During heating or in case of fire poisonous gases are produced.
- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

• *Personal precautions, protective equipment and emergency procedures Mount respiratory protective device.*

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Wear protective equipment. Keep unprotected persons away.

- Environmental precautions: No special measures required.
- *Methods and material for containment and cleaning up:* Use neutralizing agent. 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:

- · Precautions for safe handling
- Thorough dedusting.
- Ensure good ventilation/exhaustion at the workplace.
- Open and handle receptacle with care.
- · Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- 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. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. 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:



Protective gloves

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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:



Tightly sealed goggles

9 Physical and chemical properties

Appearance:		
Form:	Powder	
Color:	Yellow	
Odor:	Acidic	
Odor threshold:	Not determined.	
pH-value:	Not applicable.	
Change in condition		
Melting point/Melting range:	no data °C	
Boiling point/Boiling range:	no data °C	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not determined.	
Ignition temperature:		
Decomposition temperature:	Not determined.	
Auto igniting:	Not determined.	
Danger of explosion:	Product does not present an explosion hazard.	
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.	

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· Partition coefficient (n-octan	ol/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 %	
• 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.
- $\cdot \textit{Incompatible materials: } No further relevant information available.$
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:

• on the skin: Caustic effect on skin and mucous membranes.

- \cdot on the eye:
- Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · 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.

- · 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.

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Trade name: Bis(2-methylindenyl)zirconium dichloride, 98%

- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- Mobility in soil No further relevant information available.
- Additional ecological information:
- General notes: Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- **vPvB:** Not applicable.
- · 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	UN3261
UN proper shipping name	
DOT, IATA	Corrosive solid, acidic, organic, n.o.s.
IMDG	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
Transport hazard class(es)	
DOT	
See	
CORROSIVE	
V	
Class	8 Corrosive substances
Label	8
IMDG, IATA	
Class	8 Corrosive substances
Label	8
Packing group	
DOT, IMDG, IATA	II
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Warning: Corrosive substances
EMS Number:	F-A,S-B

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Trade name: Bis(2-methylindenyl)zirconium dichloride, 98%

	(Contd. of page (
· Segregation groups	Acids
· Stowage Category	В
• Transport in bulk according to Annex II of	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
· IMDG	
· Limited quantities (LQ)	1 kg
\cdot Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 g
	Maximum net quantity per outer packaging: 500 g
· UN ''Model Regulation'':	UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, 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).

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Hazard pictogr	ams
$\mathbf{\wedge}$	
F	
GHS05	
6'II.D	
Signal word Da	inger
Hazard-determ	ining components of labeling:
	lenyl)zirconium dichloride, 98%
Hazard statem	
H314 Causes s	evere skin burns and eye damage.
Precautionary	
P231	Handle under inert gas.
P303+P361+P	353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with wa
	shower.
P305+P351+P	338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if pres
	and easy to do. Continue rinsing.
	Store in a well-ventilated place. Keep container tightly closed.
P403+P233	Stand and the in the interval
P403+P233 P422	Store contents under inert gas.
	Dispose of contents/container in accordance with local/regional/national/internatio

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 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 Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

