CHEMICALS, INC

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 16.07.2021

Revision: 16.07.2021

| SECTION 1: Identification of the substance/mixture and e | of the company/undertaking |
|--|----------------------------|
| | |

- · 1.1 Product identifier
- Trade name: (2S,2'S,3S,3'S)-3,3'-Di-tert-butyl-4,4'-bis(2,6-dimethoxyphenyl)-2,2',3,3'-tetrahydro-2,2'bibenzo[d][1,3]oxaphosphole, 97% (>99% ee) (2S,2'S,3S,3'S)-Bis-BIDIME
- Item number: 15-6245
- · CAS Number:
- 1435940-21-8
- 1.2 Relevant identified uses of the substance or mixture and uses advised against No further relevant information available.
- \cdot 1.3 Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Strem Chemicals, Inc.
 7 Mulliken Way NEWBURYPORT, MA 01950 USA info@strem.com
- · Further information obtainable from: Technical Department
- 1.4 Emergency telephone number: EMERGENCY: CHEMTREC: + 1 (800) 424-9300 During normal opening times: +1 (978) 499-1600

SECTION 2: Hazards identification

| · Classification d | on of the substance or mixture according to Regulation (EC) No 1272/2008 is not classified according to the CLP regulation. |
|--------------------------------------|---|
| · 2.2 Label elem | |
| 0 | rding to Regulation (EC) No 1272/2008 Void |
| • Hazard pictogr • Signal word Va | |
| · Hazard statem | |
| · Precautionary | |
| P262 | Do not get in eyes, on skin, or on clothing. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| | 338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if |
| 1000 11001 11 | present and easy to do. Continue rinsing. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international |
| | regulations. |
| · 2.3 Other haza | 0 |
| · Results of PBT | and vPvB assessment |
| · PBT: Not appli | |
| • vPvB: Not appl | |
| | |

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SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances

· CAS No. Description

1435940-21-8 (2S,2'S,3S,3'S)-3,3'-Di-tert-butyl-4,4'-bis(2,6dimethoxyphenyl)-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1, 3]oxaphosphole, 97% (>99% ee) (2S,2'S,3S,3'S)-Bis-BIDIME

SECTION 4: First aid measures

- 4.1 Description of first aid measures
- · General information: No special measures required.
- 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. Then consult a doctor.
- After swallowing: If symptoms persist consult doctor.
- · 4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

SECTION 5: Firefighting measures

- · 5.1 Extinguishing media
- · Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
- · 5.2 Special hazards arising from the substance or mixture No further relevant information available.
- · 5.3 Advice for firefighters
- · Protective equipment: No special measures required.

SECTION 6: Accidental release measures

- · 6.1 Personal precautions, protective equipment and emergency procedures Not required.
- 6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- 6.3 Methods and material for containment and cleaning up: Dispose contaminated material as waste according to item 13.
- \cdot 6.4 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.

SECTION 7: Handling and storage

- · 7.1 Precautions for safe handling No special measures required.
- · Information about fire and explosion protection: No special measures required.
- · 7.2 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: None.

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• 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

• Additional information about design of technical facilities: No further data; see item 7.

- · 8.1 Control parameters
- Ingredients with limit values that require monitoring at the workplace: Not required.
- Additional information: The lists valid during the making were used as basis.
- · 8.2 Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- The usual precautionary measures are to be adhered to when handling chemicals.
- · Respiratory protection: 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 \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

| • 9.1 Information on basic physical and ch • General Information | nemical properties |
|---|---|
| · Appearance: | |
| Form: | Crystalline |
| Colour: | White |
| · Odour: | Characteristic |
| · Odour threshold: | Not determined. |
| · pH-value: | Not applicable. |
| · Change in condition | |
| Melting point/freezing point: Initial boiling point and boiling range: | Undetermined. Undetermined. |
| · Flash point: | Not applicable. |
| · Flammability (solid, gas): | Product is not flammable. |
| · Ignition temperature: | |
| Decomposition temperature: | Not determined. |
| · Auto-ignition temperature: | Not determined. |
| · Explosive properties: | Product does not present an explosion hazard. |
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| | (Contd. of page |
|---|--|
| · Explosion limits: | |
| Lower: | Not determined. |
| Upper: | Not determined. |
| · Vapour pressure: | Not applicable. |
| · Density: | Not determined. |
| Relative density | Not determined. |
| · Vapour 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 % |
| VÕC (EC) | 0.00 % |
| • 9.2 Other information | No further relevant information available. |

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

- · 11.1 Information on toxicological effects
- Acute toxicity Based on available data, the classification criteria are not met.
- · Primary irritant effect:
- · Skin corrosion/irritation Based on available data, the classification criteria are not met.
- Serious eye damage/irritation Based on available data, the classification criteria are not met.
- · Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- · CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
- · Germ cell mutagenicity Based on available data, the classification criteria are not met.
- · Carcinogenicity Based on available data, the classification criteria are not met.
- \cdot **Reproductive toxicity** Based on available data, the classification criteria are not met.
- STOT-single exposure Based on available data, the classification criteria are not met.
- $\cdot \textbf{STOT-repeated exposure} Based on available data, the classification criteria are not met.$
- Aspiration hazard Based on available data, the classification criteria are not met.

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SECTION 12: Ecological information

· 12.1 Toxicity

- Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability No further relevant information available.
- 12.3 Bioaccumulative potential No further relevant information available.
- · 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:
- Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · 12.5 Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- · 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- · 13.1 Waste treatment methods
- · Recommendation Disposal must be made according to official regulations.
- · Uncleaned packaging:
- Recommendation: Disposal must be made according to official regulations.

| × v | tion | |
|--|------------------------------|--|
| 14.1 UN-Number ADR, ADN, IMDG, IATA | not regulated | |
| 14.2 UN proper shipping name ADR, ADN, IMDG, IATA | not regulated | |
| 14.3 Transport hazard class(es) | | |
| ADR, ADN, IMDG, IATA Class | not regulated | |
| 14.4 Packing group ADR, IMDG, IATA | not regulated | |
| 14.5 Environmental hazards: | Not applicable. | |
| 14.6 Special precautions for user | Not applicable. | |
| 14.7 Transport in bulk according to Ann Marpol and the IBC Code | nex II of Not applicable. | |
| UN "Model Regulation": | not regulated | |

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SECTION 15: Regulatory information

- · 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- · Directive 2012/18/EU
- · Named dangerous substances ANNEX I Substance is not listed.
- · National regulations:
- Waterhazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 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
- · 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 IATA: International Air Transport Association GHS: Globally Harmonised System of Classification and Labelling of Chemicals CAS: Chemical Abstracts Service (division of the American Chemical Society) VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative