

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

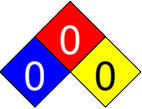
Reviewed on 02/28/2022

1 Identification

- **Product name**
- **Trade name:** (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%
- **Item number:** 07-1076
- **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**
The product is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements not applicable**
- **Hazard pictograms not applicable**
- **Signal word not applicable**
- **Hazard statements not applicable**
- **Precautionary statements**
P231 Handle under inert gas.
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.
P411+P235 Store at temperatures not exceeding 4°C. Keep cool.
P422 Store contents under inert gas.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**


Health = 0
Fire = 0
Reactivity = 0
- **HMIS-ratings (scale 0 - 4)**

| | |
|------------|---|
| HEALTH | 0 |
| FIRE | 0 |
| REACTIVITY | 0 |

Health = 0
Fire = 0
Reactivity = 0
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

US

(Contd. on page 2)

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 1)

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- **Dangerous components:** not applicable

4 First-aid measures

- **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.
- **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** Not required.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
- **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:**
None of the ingredients is listed.

· **PAC-2:**
None of the ingredients is listed.

· **PAC-3:**
None of the ingredients is listed.

7 Handling and storage

- **Handling:** Handle under inert gas.

(Contd. on page 3)

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 2)

- **Precautions for safe handling**
No special measures required.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
Keep cool.
Store contents under inert gas.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** None.
- **Recommended storage temperature:** Store at temperatures not exceeding 4 °C. Keep cool.
- **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:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
- **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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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

US

(Contd. on page 4)

Safety Data Sheet according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 3)

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

| | |
|--------------------------|-----------------|
| · Form: | Powder |
| · Color: | Whitish |
| · Odor: | Characteristic |
| · 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):** Product is not flammable

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **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/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 |

· **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.

(Contd. on page 5)

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 4)

- **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:**

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is 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.

13 Disposal considerations

· **Waste treatment methods**

- **Recommendation:** Disposal must be made according to official regulations.

· **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

US

(Contd. on page 6)

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 5)

14 Transport information

| | |
|---|-----------------|
| · UN-Number · DOT, IMDG, IATA | not regulated |
| · UN proper shipping name · DOT, IMDG, IATA | not regulated |
| · Transport hazard class(es) · DOT, IMDG, IATA · Class | not regulated |
| · Packing group · DOT, IMDG, IATA | not regulated |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | not regulated |

15 Regulatory information

| |
|--|
| · Safety, health and environmental regulations/legislation specific for the substance or mixture · Sara |
| · Section 355 (extremely hazardous substances): None of the ingredients is listed. |
| · Section 313 (Specific toxic chemical listings): None of the ingredients is listed. |
| · TSCA (Toxic Substances Control Act): None of the ingredients is listed. |
| · Proposition 65 |
| · Chemicals known to cause cancer: None of the ingredients is listed. |
| · Chemicals known to cause reproductive toxicity for females: None of the ingredients is listed. |
| · Chemicals known to cause reproductive toxicity for males: None of the ingredients is listed. |
| · Chemicals known to cause developmental toxicity: None of the ingredients is listed. |
| · Carcinogenic categories |
| · EPA (Environmental Protection Agency) None of the ingredients is listed. |
| · TLV (Threshold Limit Value established by ACGIH) None of the ingredients is listed. |
| · NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients is listed. |

(Contd. on page 7)

Safety Data Sheet
according to OSHA HCS

Printing date 02/28/2022

Reviewed on 02/28/2022

Trade name: (4R,4'R,5S,5'S)-2,2'-Cyclobutylidenebis[4,5-dihydro-4,5-diphenyloxazole], 98%

(Contd. of page 6)

- **GHS label elements not applicable**
- **Hazard pictograms not applicable**
- **Signal word not applicable**
- **Hazard statements not applicable**
- **Precautionary statements**
 - P231 Handle under inert gas.
 - 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.
 - P411+P235 Store at temperatures not exceeding 4°C. Keep cool.
 - 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** 02/28/2022 / -
- **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
 - ELINCS: European List of Notified 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