1 Identification

· **Product name**

· **Trade name:** 2-((2S,3S)-4-(Anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine, 97% (>99% ee)

· **Item number:** 15-6894

· **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

· **Other hazards**
  · **Results of PBT and vPvB assessment**
    · **PBT:** Not applicable.
    · **vPvB:** Not applicable.
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.
- **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**: Not required.
- **Further information about storage conditions**: None.
- **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**
- **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.
9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - **Form:** Solid
      - **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
- No decomposition if used according to specifications.
- No dangerous reactions known.
- No further relevant information available.
- No dangerous decomposition products known.

11 Toxicological information

- Acute toxicity:
  - No irritant effect.
  - No irritating effect.
  - No sensitizing effects known.
- 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.

12 Ecological information

- No further relevant information available.
- No further relevant information available.
- No further relevant information available.
- Not known to be hazardous to water.
- Not applicable.
- Not applicable.

13 Disposal considerations

- Disposal must be made according to official regulations.
Trade name: 2-((2S,3S)-4-(Anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine, 97% (>99% ee)

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

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated
- **DOT, IMDG, IATA**
  - UN proper shipping name: not regulated
- **DOT, IMDG, IATA**
  - Transport hazard class(es)
    - DOT, IMDG, IATA: not regulated
  - Class: not regulated
- **DOT, IMDG, IATA**
  - Packing group: 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.
Safety Data Sheet  
according to OSHA HCS

Trade name: 2-((2S,3S)-4-(Anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine, 97% (>99% ee)

(Contd. of page 6)

- 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.

- 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.
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  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 04/16/2020 / -
- 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