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

1.1 Product identifier
- Trade name: Tetrakis(triphenylphosphine)palladium(0), 99% (99.9+%-Pd)
- Item number: 46-2150
- CAS Number: 14221-01-3
- EC number: 238-086-9

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

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

1.4 Emergency telephone number:
- EMERGENCY: CHEMTREC: +1 (800) 424-9300
- During normal opening times: +1 (978) 499-1600

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
  The substance is not classified according to the CLP regulation.

2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008 Void
- Hazard pictograms Void
- Signal word Void
- Hazard statements Void
- 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 -18°C. Keep cool.
  P422 Store contents under inert gas.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation: Substances
- CAS No. Description
  14221-01-3 Tetrakis(triphenylphosphine)palladium(0), 99% (99.9+%-Pd)
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.

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.
Open and handle receptacle with care.

Handling: Handle under inert gas.

Information about fire - and explosion protection: No special measures required.

7.2 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.
Recommended storage temperature: Store at temperatures not exceeding -18 °C. Keep cool.
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 glover material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glover material can be given for the product/ the preparation/ the
chemical mixture.
Selection of the glover 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.
  - Penetration time of glover 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 chemical properties
- General Information
  - Appearance:
    Form: Powder
    Colour: Yellow
  - Odour:
    Colour: Characteristic
  - Odour threshold:
    Not determined.
  - pH-value:
    Not applicable.

- Change in condition
  Melting point/freezing point: Undetermined.
  Initial boiling point and boiling range: 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.
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 %
- VOC (EC): 0.00 %

Solids content: 100.0 %

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

10.3 Thermal decomposition / conditions to be avoided:
- No decomposition if used according to specifications.

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

11.2 Acute toxicity
- Based on available data, the classification criteria are not met.

11.3 Primary irritant effect:

11.4 Skin corrosion/irritation
- Based on available data, the classification criteria are not met.

11.5 Respiratory or skin sensitisation
- Based on available data, the classification criteria are not met.

11.6 CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

11.7 Germ cell mutagenicity
- Based on available data, the classification criteria are not met.

11.8 Reproductive toxicity
- Based on available data, the classification criteria are not met.

11.9 STOT-single exposure
- Based on available data, the classification criteria are not met.

11.10 STOT-repeated exposure
- Based on available data, the classification criteria are not met.

11.11 Aspiration hazard
- Based on available data, the classification criteria are not met.
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.

SECTION 14: Transport information

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 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 Annex II of Marpol and the IBC Code
- Not applicable.

14.8 UN "Model Regulation": not regulated
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
  EINECS: European Inventory of Existing Commercial Chemical Substances
  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