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

- 1.1 Product identifier
- **Trade name**: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)
- **Item number**: 28-1301
- **CAS Number**: 1271-28-9
- **EC number**: 215-039-0

- 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
- **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

- 2.1 Classification of the substance or mixture
- **Classification according to Regulation (EC) No 1272/2008**

  GHS02 flame
  Flam. Sol. 1 H228 Flammable solid.

  GHS08 health hazard
  Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  Carc. 1A H350 May cause cancer.

  GHS07
  Acute Tox. 4 H302 Harmful if swallowed.
  Acute Tox. 4 H332 Harmful if inhaled.
  Skin Irrit. 2 H315 Causes skin irritation.
  Eye Irrit. 2 H319 Causes serious eye irritation.
  Skin Sens. 1 H317 May cause an allergic skin reaction.
  STOT SE 3 H335 May cause respiratory irritation.

- 2.2 Label elements
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
Trade name: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)

**Hazard pictograms**

- GHS02
- GHS07
- GHS08

**Signal word** Danger

**Hazard-determining components of labelling:**
Nickelocene

**Hazard statements**

- H228 Flammable solid.
- H302+H332 Harmful if swallowed or if inhaled.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H344 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H350 May cause cancer.
- H335 May cause respiratory irritation.

**Precautionary statements**

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P231 Handle under inert gas.
- P210 Keep away from heat/sparks/open flames/hot surfaces - No smoking.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER / doctor.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- 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**
  - 1271-28-9 Nickelocene
- **Identification number(s)**
  - EC number: 215-039-0

### SECTION 4: First aid measures

**4.1 Description of first aid measures**

**General information:**
Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
After inhalation:
Supply fresh air and be sure call for a doctor.
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. If symptoms persist, consult a doctor.

After swallowing:
Call for a doctor immediately.

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:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture
No further relevant information available.

5.3 Advice for firefighters
Protective equipment: Mouth respiratory protective device.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:
No special measures required.

6.3 Methods and material for containment and cleaning up:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

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
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.

Handling: Handle under inert gas.

Information about fire - and explosion protection:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities
Storage: 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:
Keep container tightly sealed.
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:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the eyes and skin.
  - Respiratory protection:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
  - 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.
  - 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

- 9.1 Information on basic physical and chemical properties
- General Information
  - Appearance:
    Form: Crystalline
    Colour: Dark green
  - Odour:
    Odourless
  - Odour threshold:
    Not determined.
  - pH-value:
    Not applicable.
- Change in condition
  - Melting point/Melting range: 173-174 °C
  - Boiling point/Boiling range: no data °C
Trade name: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)

- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Flammable.
- **Ignition temperature:**
  - **Decomposition temperature:** Not determined.
  - **Self-igniting:** Not determined.
  - **Danger of explosion:** Not determined.
- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Vapour pressure:** no data hPa
- **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**
  - **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**
    - Harmful if swallowed or if inhaled.
  - **Primary irritant effect:**
  - **Skin corrosion/irritation**
    - Causes skin irritation.
Trade name: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)

- **Serious eye damage/irritation**
  Causes serious eye irritation.

- **Respiratory or skin sensitisation**
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  May cause an allergic skin reaction.

- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
  Based on available data, the classification criteria are not met.

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

- **Carcinogenicity**
  May cause cancer.

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

- **STOT-single exposure**
  May cause respiratory irritation.

- **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*: Not known to be hazardous to water.

- **12.5 Results of PBT and vPvB assessment**
  - *PBT*: Not applicable.
  - *vPvB*: Not applicable.

- **12.6 Other adverse effects**
  No further relevant information available.

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**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
  - **Recommendation**
    Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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

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**SECTION 14: Transport information**

- **14.1 UN-Number**
  - **ADR, IMDG, IATA**: UN1325

- **14.2 UN proper shipping name**
  - **ADR**: 1325 FLAMMABLE SOLID, ORGANIC, N.O.S.
  - **IMDG**: FLAMMABLE SOLID, ORGANIC, N.O.S.
  - **IATA**: Flammable solids, organic, n.o.s.
Trade name: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)

14.3 Transport hazard class(es)
- ADR, IMDG
  
  - Class: 4
  - Label: 4.1

IATA

- Class: 4.1
  - Description: Flammable solids, self-reactive substances and solid desensitised explosives.
- Label: 4.1

14.4 Packing group
- ADR, IMDG, IATA
  - Packing Group: II

14.5 Environmental hazards:
- Marine pollutant: No

14.6 Special precautions for user
- EMS Number: F-A,S-G
- Stowage Category: B

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
- Not applicable.

Transport/Additional information:

- ADR
  - Limited quantities (LQ): 1 kg
    - Code: E2
  - Excepted quantities (EQ): Maximum net quantity per inner packaging: 30 g
    - Maximum net quantity per outer packaging: 500 g

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:
- Additional classification according to Decree on Hazardous Materials, Annex II:
  - Carcinogenic hazardous material group I (extremely dangerous).
  - Carcinogenic hazardous material group II (very dangerous).
  - Carcinogenic hazardous material group III (dangerous).
Trade name: Bis(cyclopentadienyl)nickel, 99% (Nickelocene)

- **Information about limitation of use:**
  Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- **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 MSDS:** 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
  Flam. Sol. 1: Flammable solids, Hazard Category 1
  Acute Tox. 4: Acute toxicity, Hazard Category 4
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1
  Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
  Carc. 1A: Carcinogenicity, Hazard Category 1A
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3