



TCI (Shanghai) DEVELOPMENT CO., LTD.

Revision number: 2

Revision date: 10/24/2019

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SAFETY DATA SHEET

1. IDENTIFICATION

Product name: Ruthenocene
Product code: R0078
Company: TCI (Shanghai) DEVELOPMENT CO., LTD.
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Revision number: 2

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

PHYSICAL HAZARDS

Not classified

HEALTH HAZARDS

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 2A

ENVIRONMENTAL HAZARDS

Not classified

Label elements

Pictograms or hazard symbols



Signal word

Warning

Hazard statements

Causes skin irritation

Causes serious eye irritation

Precautionary statements

[Prevention]

Wash hands and face thoroughly after handling.

Wear protective gloves, eye protection.

[Response]

IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture: Substance
Components: Ruthenocene
Percent:
CAS RN: 1287-13-4
Synonyms: Bis(cyclopentadienyl)ruthenium(II)
Chemical Formula: C₁₀H₁₀Ru

4. FIRST AID MEASURES

- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
- Skin contact:** Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
- Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- Ingestion:** Get medical advice/attention if you feel unwell. Rinse mouth.
- Protection of first-aiders:** A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media:** Dry chemical, foam, water spray, carbon dioxide.
- Precautions for firefighters:** Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.
- Special protective equipment for firefighters:** When extinguishing fire, be sure to wear personal protective equipment

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
- Environmental precautions:** Prevent product from entering drains.
- Methods and materials for containment and cleaning up:** Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

- Technical measures:** Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling.
Use a local exhaust if dust or aerosol will be generated.
- Advice on safe handling:** Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities

- Storage conditions:** Keep container tightly closed. Store in a cool and dark place. Store under inert gas. Protect from moisture. Store away from incompatible materials such as oxidizing agents. Hygroscopic
- Packaging material:** Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering controls:** Install a closed system or local exhaust as possible so that workers should not be exposed directly. Also install safety shower and eye bath.
- Personal protective equipment**
- Respiratory protection:** Dust respirator. Follow local and national regulations.
- Hand protection:** Protective gloves.
- Eye protection:** Safety glasses. A face-shield, if the situation requires.
- Skin and body protection:** Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--------------------------------|
| Physical state (20°C): | Solid |
| Form: | Crystal - Powder |
| Colour: | Very pale yellow - Deep yellow |
| Odour: | Odorless |
| pH: | No data available |
| Melting point/freezing point: | 202°C |
| Boiling point/range: | No data available |
| Flash point: | No data available |
| Flammability or explosive limits: | |
| Lower: | No data available |
| Upper: | No data available |
| Relative density: | No data available |
| Solubility(ies): | |
| [Water] | No data available |
| [Other solvents] | No data available |

10. STABILITY AND REACTIVITY

| | |
|--|--|
| Chemical stability: | Stable under proper conditions. |
| Possibility of hazardous reactions: | No special reactivity has been reported. |
| Incompatible materials: | Oxidizing agents |
| Hazardous decomposition products: | Carbon monoxide, carbon dioxide etc |

11. TOXICOLOGICAL INFORMATION

| | |
|---------------------------------------|-------------------|
| Acute Toxicity: | No data available |
| Skin corrosion/irritation: | No data available |
| Serious eye damage/irritation: | No data available |
| Germ cell mutagenicity: | No data available |
| Carcinogenicity: | |
| IARC = | No data available |
| NTP = | No data available |
| Reproductive toxicity: | No data available |

12. ECOLOGICAL INFORMATION

| | |
|---|-------------------|
| Ecotoxicity: | |
| Fish: | No data available |
| Crustacea: | No data available |
| Algae: | No data available |
| Persistence / degradability: | No data available |
| Bioaccumulative potential(BCF): | No data available |
| Mobility in soil | |
| Log Pow: | No data available |
| Soil adsorption (Koc): | No data available |
| Henry's Law (PaM³/mol): | No data available |

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

| | |
|-----------------------|--|
| Hazards Class: | Does not correspond to the classification standard of the United Nations |
| UN-No: | Not listed |

15. REGULATORY INFORMATION

Regulations on the Control over Safety of Dangerous Chemicals (State Council announces on January 26, 2002 and revised on February 16,2011): Safe use and production, the storage of a dangerous chemical, transport, loading and unloading were prescribed.

16. OTHER INFORMATION

The reference company name of written contents

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This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.