TCI (Shanghai) DEVELOPMENT CO., LTD.

4-Chloro-1,3-dioxolan-2-one

Revision number: 1

Revision date: 11/30/2010

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SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product name: **Product code:** Company: Address: **Responsible Department: Telephone:** Fax: e-mail: **Revision number:**

4-Chloro-1,3-dioxolan-2-one C1858 TCI (Shanghai) DEVELOPMENT CO., LTD. No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China Sales Department +86-(0)21-67121386 +86-(0)21-67121385 sales@tcishanghai.com.cn 1

2. HAZARDS IDENTIFICATION

Classification of the GHS PHYSICAL HAZARDS HEALTH HAZARDS Skin corrosion/irritation Serious eye damage/eye irritation Germ cell mutagenicity **ENVIRONMENTAL HAZARDS GHS** label elements Pictograms or hazard symbols



Signal word На

| Hazard statement | Causes skin irritation |
|--------------------------|---|
| | Causes serious eye irritation |
| | Suspected of causing genetic defects |
| Precautionary statements | |
| [Prevention] | Obtain special instructions before use. |
| | Do not handle until all safety precautions have been read and understood. |
| | Wash hands thoroughly after handling. |
| | Wear protective gloves/eye protection/face protection. |
| [Response] | 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/attention. |
| | IF ON SKIN: Gently wash with plenty of soap and water. |
| | If skin irritation occurs: Get medical advice/attention. |
| | Take off contaminated clothing and wash before reuse. |
| | IF exposed or concerned: Get medical advice/attention. |
| [Storage] | Store locked up. |
| [Disposal] | Dispose of contents/container through a waste management company authorized by |
| | the local government |

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Substance/mixture: | Substance |
|--------------------|-----------------------------|
| Component(s): | 4-Chloro-1,3-dioxolan-2-one |
| Percent: | >92.0%(GC) |
| CAS Number: | 3967-54-2 |

Not classified

Category 2 Category 2A Category 2 Not classified

Danger

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Synonyms: | 4-Chloro-2-oxo-1,3-dioxolane, Chloroethylene Carbonate |
|-------------------|--|
| Chemical Formula: | C ₃ H ₃ ClO ₃ |
| | |

4. FIRST AID MEASURES

| Inhalation: | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention. |
|-----------------------------|--|
| Skin contact: | Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention. |
| Eye contact: | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention. |
| Ingestion: | Get medical advice/attention.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. |
|--|---|
| Extinguishing media not to be used: | Solid streams of water |
| Specific hazards: | Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume. |
| Specific methods: | 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, | Use extra personal protective equipment (self-contained breathing apparatus). Keep |
|---------------------------|--|
| protective equipment and | people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non- |
| emergency procedures: | involved personnel should be controlled around the leakage area by roping off, etc. |
| Environmental precautions | Prevent product from entering drains. |
| Methods and materials for | Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). |
| containment and cleaning | In case of large amount of spillage, contain a spill by bunding. Adhered or collected |
| up: | material should be promptly disposed of, in accordance with appropriate laws and |
| - | regulations. |

7. HANDLING AND STORAGE

Handling

| Technical measures: | Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapor or mist. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapor or aerosol will be generated. |
|--------------------------|---|
| Advice on safe handling: | Avoid all contact! |
| Storage | |
| Storage conditions: | Keep container tightly closed. Store in a refrigerator. Store locked up. |
| Packaging material: | Store away from incompatible materials such as oxidizing agents. Law is followed. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Install a closed system or local exhaust. Also install safety shower and eye bath. Personal protective equipment

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| Respiratory protection: | Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied |
|---------------------------|---|
| | air respirator, etc. Use respirators approved under appropriate government standards |
| | and follow local and national regulations. |
| Hand protection: | Impervious gloves. |
| Eye protection: | Safety goggles. A face-shield, if the situation requires. |
| Skin and body protection: | Impervious protective clothing. Protective boots, if the situation requires. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical state (20°C): | Liquid |
|------------------------------|---|
| Form: | clear |
| Color: | Colorless - Pale yellow |
| Odor: | No data available |
| pH: | No data available |
| Melting point/freezing point | t:No data available |
| Boiling Point/Range: | 123 °C/2.4kPa |
| Flash Point: | No data available |
| Explosive limits | |
| Lower: | No data available |
| Upper: | No data available |
| Density: | 1.51 |
| Solubility: | Soluble in : Many organic solvents Very slightly soluble in: Water |

10. STABILITY AND REACTIVITY

| Stability: | Stable under proper conditions. |
|--------------------------|--|
| Reactivity: | No special reactivity has been reported. |
| Conditions to avoid: | Heat-sensitive |
| Incompartible materials: | oxidizing agents |
| Hazardous Decomposition | Carbon monoxide, Carbon dioxide, Hydrogen chloride |
| Products: | |

11. TOXICOLOGICAL INFORMATION

| Acute Toxicity: | No data available |
|---|-------------------|
| Skin corrosion/irritation: | No data available |
| Skin corrosion/irritation: Serious eye | No data available |
| damage/irritation: Germ cell mutagenicity: Carcinogenicity: | No data available |
| 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 | No data available |
| potential(BCF): | |
| Mobillity in soil | |
| log Pow: | No data available |
| Soil adsorption (Koc): | No data available |
| Henry's Law | No data available |
| constant(PaM ³ /mol): | |
| | |

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to 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 NationsUN-No:Not Listed

15. REGULATORY INFORMATION

Safe management ordinance of dangerous chemical product (State Council announces on January 26, 2002): 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

| Company: | TCI (Shanghai) DEVELOPMENT CO., LTD. |
|----------------------------|---|
| Address: | No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China |
| Department: | R&D (Information Management) Department |
| Telephone: | +86-(0)21-67121388*461 |
| Fax: | +86-(0)21-67121385 |
| SDS was prepared sincerely | on the basis of the information we could obtained however, any warranty shall not be given regarding the data |

This MSDS 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.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.