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SAFETY DATA SHEET

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

Product name: (S,S)-(+)-2,3-Butanediol

Product code: B1343

Company: TCI (Shanghai) DEVELOPMENT CO., LTD.

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Revision number: 1

2. HAZARDS IDENTIFICATION

Classification of the GHS PHYSICAL HAZARDS

Flammable liquids Category 4
HEALTH HAZARDS Not classified
ENVIRONMENTAL HAZARDS Not classified

GHS label elements

Pictograms or hazard symbols None Signal word Warning

Hazard statement Combustible liquid

Precautionary statements

[Prevention] Keep away from flames and hot surfaces.

Wear protective gloves and eye/face protection.

[Storage] Store in a well-ventilated place. Keep cool.

[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): (S,S)-(+)-2,3-Butanediol

Percent: >97.0%(GC) **CAS Number:** 19132-06-0

Synonyms: (S,S)-(+)-2,3-Butylene Glycol , (S,S)-(+)-2,3-Dihydroxybutane

Chemical Formula: $C_4H_{10}O_2$

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. Rinse skin with

water/shower. 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

Dry chemical, foam, carbon dioxide.

media:

Extinguishing media not to Water (It may scatter and spread fire.)

be used:

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, protective equipment and emergency procedures:

Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. 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

Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust).

In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and

regulations.

Prevention of secondary

hazards:

Remove all sources of ignition. Fire-extinguishing devices should be prepared in

case of a fire. Use spark-proof tools and explosion-proof equipment.

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. Keep away from flames and hot surfaces. Take measures to prevent the build up of electrostatic charge. Use explosion-proof

equipment. Wash hands and face thoroughly after handling.

Use a closed system, ventilation.

Advice on safe handling:

Avoid contact with skin, eyes and clothing.

Storage

Keep container tightly closed. Store in a cool, dark and well-ventilated place. Storage conditions:

> Store under inert das. Protect from moisture.

Store away from incompatible materials such as oxidizing agents.

Packaging material: Law is followed.

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: Vapor respirator. Follow local and national regulations.

Hand protection: Protective gloves.

Safety glasses. A face-shield, if the situation requires. Eye protection: **Skin and body protection:** Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid Form: clear

Color: Colorless - Slightly pale yellow

Odor: No data available :Ha No data available Melting point/freezing point: 17°C (Freezing point)

182 °C **Boiling Point/Range:** Flash Point: 85°C

9. PHYSICAL AND CHEMICAL PROPERTIES

Explosive limits

Lower: No data available Upper: No data available

Density: 0.99

Solubility: No data available

10. STABILITY AND REACTIVITY

Stability: Stable under proper conditions.

Reactivity: No special reactivity has been reported.

Conditions to avoid: Hygroscopic Incompartible materials: oxidizing agents

Hazardous Decomposition Carbon monoxide, Carbon dioxide

Products:

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: No data available
Skin corrosion/irritation: No data available
Serious eye No data available

damage/irritation:

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:
Crustacea:
Algae:
Persistence / degradability:
Bioaccumulative
No data available
No data available
No data available
No data available

potential(BCF): Mobillity in soil

log Pow:No data availableSoil adsorption (Koc):No data availableHenry's LawNo data available

constant(PaM³/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 Nations

UN-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.

16. OTHER INFORMATION

Address: No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China

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