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## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name :** Tyramine Oxidase

**Synonym(s):** TOD (T-25)

**General Use:** Only for clinical diagnostic use

**Product Description:** TOD is an enzyme produced by microorganisms.  
This product shall be used for a diagnostics reagent.

**MSDS Number:** HC09-012

**Name of manufacturer :** ASAHI KASEI PHARMA CORPORATION

**Address:** Diagnostics Department  
1-105 Kanda Jinbocho, Chiyoda-ku, Tokyo 101-8101, JAPAN

**Telephone number:** +81-3-3296-3618

**Fax number:** +81-3-3296-3682

**Emergency Telephone Number:** +81-3-3296-3618  
9:00am - 6:00pm Japan Time (+9:00 GMT) M-F

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### 2. COMPOSITION / INFORMATION ON INGREDIENTS

**Ingredients** : Enzyme Protein 35~81%, Inorganic Salt 3~6%  
Sugar 15~58%.

**Composition** : Biocatalytic activity = More than 3 U/mg solid.

**Chemical formula** : Not given.

**Molecular weight** : 48 kDa (gel filtration)

**CAS Registry No.** : 9001-66-5

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### 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW :** It is very soluble in water.

**PHYSICAL AND CHEMICAL HAZARDS:** Non-inflammable powder.

**POTENTIAL HEALTH EFFECTS:**

**Inhalation:** Possible allergic reaction.

**Eye contact:** May cause irritation.

**Skin contact:** May cause irritation.

**Ingestion:** May cause allergic reaction and hyper sensitization.

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### 4. FIRST-AID MEASURES

**Inhalation :** Remove the exposed individual from the area to take fresh air and contact physician.

**Eye contact :** Wash eyes immediately with large amounts of water then get medical attention immediately.

**Skin contact :** Wash skin immediately with large amounts of water.

**Ingestion :** Rinse mouth with water.  
If vomiting occurs then get medical attention immediately.

**NOTE TO PHYSICIAN:** Nothing special.

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### 5. FIRE FIGHTING MEASURES

**FIRE AND EXPLOSION HAZARD:** Nothing special.

**FIRE EXTINGUISHING MEDIA:** Carbon dioxide, Dry Chemical or Spray water.

**FIRE FIGHTING INSTRUCTIONS:** Nothing special (Normal extinguishing the fire).

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### 6. ACCIDENTAL RELEASE MEASURES

**LAND SPILL:** Small spills should be wiped up immediately with wet gauze.  
Large spills should be eliminated all ignition sources with vacuum or sweep material and place in a disposal container. Clean all contaminated surfaces thoroughly with wet gauze.

**WATER SPILL:** Waste resolved material to sewerage.

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## 7. HANDLING AND STORAGE

- HANDLING:**    **Keep the container in an upright position and do not roll and scattering.**  
                  **Use dust-proof mask and clothing, safety glasses in a well ventilated place.**  
                  **Minimize dust generation and accumulation.**  
                  **Wash hands, face and other exposed section thoroughly after handling.**
- STORAGE:**    **Keep in freezer(-20~-80°C), dry place in well-closed containers and away**  
                  **from direct sun light.    Keep out of reach of children.**
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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTON

**ENGINEERING CONTROLS:**    **No specific controls are needed.**

**PERSONAL PROTECTIVE EQUIPMENT:**

- Eye / Face protection:**        **Safety glasses.**  
**Skin Protection:**                **Dust-proof clothing.**  
**Respiratory Protection:**       **Dust-proof masks.**

**EXPOSURE GUIDELINES :**    **Not established by OSHA, ACGIH, or NIOSH.**

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:**            **White to light brownish amorphous powder, lyophilized.**  
**Odor:**                    **Slightly odor and tasteless.**  
**Melting point :**        **No data available.**  
**Boiling point:**        **Not applicable.**  
**Vapor pressure:**      **Not applicable.**  
**Vapor density:**       **Not applicable.**  
**Solubility :**            **It is freely soluble in water.**  
**PH:**                      **Not applicable.**  
**Density:**               **No data available.**  
**Explosion limit:**      **No data available.**

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## 10. STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable for 1 years under the freezing condition(-20~-80°C).

**CONDITIONS TO AVOID:** High temperature and humidity.

**INCOMPATIBILITY WITH OTHER MATERIALS:** Nothing special.

**HAZARDOUS DECOMPOSITION:** Nothing special.

**HAZARDOUS POLYMERIZATION:** Nothing special.

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## 11. TOXICOLOGICAL INFORMATION

**ACUTE INHALATION EFFECTS:** No data available.

**SKIN EFFECTS:** No data available.

**EYE EFFECTS:** No data available.

**ACUTE EFFECTS:** No data available.

**SUBACUTE EFFECTS:** No data available.

**MUTAGENICITY:** No data available.

**TERATOGENICITY:** No data available.

**CARCINOGENICITY:** No data available.

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## 12. ECOLOGICAL INFORMATION

**ECOTOXICITY:** Nothing special.

**ENVIRONMENTAL FATE:** Nothing special.

The material is easy to decomposed with active sludge treatment.

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## 13. DISPOSAL CONSIDERATIONS

Comply with national and local regulations.

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## 14. TRANSPORT INFORMATION

No classification currently assigned, however, loading carefully to avoid any damage, do not overturn and fall down.

Reference: IMDG Cord, Hazard class = Packing group

ICAO-TI, Hazard class = Packing group

**IATA-DGR, Hazard class = Packing group**

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## **15. REGULATORY INFORMATION**

**No regulations currently assigned.**

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## **16. OTHER INFORMATIONS**

**This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Asahi Kasei Pharma Corporation.**

**It relates only to the specific material designated herein, and does not relate to use in combination with any other material or in any process.**

**Asahi Kasei Pharma Corporation assumes no legal responsibility for use of or reliance upon this information.**

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