Safety Data Sheet

1 Product and Company Identification

Chemical product Name: D-Γamma-Tocopherol 90

Manufacture

Company Name: Tama Biochemical Co. Ltd.
Division: Quality Assurance Div.
Address: 1-23-3 Nishi-shinjyuku, Shinjyuku-Ku, Tokyo, 160-0023 Japan
Telephone No: +81-3-5321-6051
FAX No: +81-3-5321-6055
Emergency Telephone No: +81-3-5321-6051
Working Time: Monday - Friday (except legal holidays), 8:40～17:30

Product Description
Cosmetics ingredient, Food additive

2 Hazards Identification

GHS Classification

Physical Hazards: Out of classification or No classification
Health Hazards: Out of classification or No classification
Environmental Hazards: Out of classification or No classification

GHS label elements
Symbol: None
Signal Word: None
Hazards Statement: None

Precautionary Statement

[Prevention] Avoid contact with eyes, skin and clothing.
Wear protective gloves/protective clothing/eye protection/face protection.

[Response] IF ON EYE: wash with plenty of water. Get medical advice/attention.
IF ON SKIN: wash with plenty of soap and water. If irritation occurs: Get medical advice/attention.
IF IN MOUTH: vomit by putting fingers in the mouth. Get medical advice/attention.
IF CASE OF FIRE: Evacuate area, stop leak if safe to do so, use proper fire extinguishers (e.g. foam, dry chemical powder, CO2) for extinction.

[Storage] Store in a shading, closed container.

[Disposal] Dispose of contents/container to relevant local and national regulations.

3. Composition / Information on Ingredients

Classification of Chemical material or mixture: Chemical material
Chemical Substance: d-γ-Tocopherol
Molecular Weight: 416.69
Molecular formula: C_{28}H_{48}O_{2}
Chemical name  2,7,8-trimethyl-2R-(4'R,8'R,12'-trimethyltridecyl)-6'chromanol
Concentration  Total d-Tocopherols:  not less than 90.0% (HPLC)
               The ratio of d-γ-Tocopherol: not less than 92.0% (GLC)
General Name  γ-Tocopherol, γ-Vitamin E, Tocopherol Vitamin E
CAS No.  54-28-4
MITI No. (Japanese government)  9-864

4 First Aid Measures
Inhalation  Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, Administer mouth-to-mouth resuscitation. Get immediate medical attention.

Skin Contact  NO harmful. Wipe with cloth or papers etc. and wash with soap and water. If any irritation occurs; Get medical attention.

Eye Contact  Wash immediately with plenty of water. Get immediate medical attention.

Ingestion  If swallowed, Vomit by putting fingers in the mouth. Get medical advice/attention.

Prospective acute symptom  Not available
Most important delayed symptom  Not available
Protection of person concerning in first aid  Not available
Specific medical attention  Not available

5 Fire Fighting Measures
Extinguishing Media  Carbon dioxide, dry chemical powder and foam.
NOT USE IN Fire Fighting Measures  Irrigation

Specific Harmful Properties  Not available
Specific Extinguishing Method  Extinct a fire with foam, dry chemical powder or carbon dioxide extinguishing media.

Fire Fighting Instructions  Wear protective fire fighting gear and fireproof clothes for protection against possible exposure.

6 Accidental Release Measures
Occupational spill/release  Keep unnecessary people away, isolate hazard area and deny entry. Wear personal protective clothing and equipment, see Section 8.

Caution for environment  Ecological toxicity is not recognized.

Containment, Cleaning method and Instruments  If the case of plenty spill, protect expansion by using earth and sand etc. and collect. If small, collect with dry sand, oil disposer, soft clothes.
7 Handling and Storage

Handling  Wear personal protective clothing and equipment, see Section 8. Avoid contact with eyes, skin and clothing. Almost harmless if contact. Wipe and wash thoroughly after handling.

Storage  Store and handle in accordance with all current regulations and standards. Store in a shading, closed container. If possible, store in a well ventilated, cool and dark space.

8 Exposure Controls / Personal Protection

Control Concentration/Working Environment Standard
- Not available

Acceptable concentration (Exposure Limit Values, Biological Exposure Index)
- Not available

Engineering Controls
- If necessary, Provide local exhaust fan.

Personal Protection
- Respiratory Protection  Not correspond
- Hand Protection  Wear appropriate chemical resistant gloves.
- Eye Protection  If necessary, Wear splash resistant safety goggles.
- Skin Protection  If necessary, Wear appropriate chemical resistant clothing.

9 Physical and Chemical Properties

Appearance(Physical State,Color etc.)  Yellow to red-brown clear viscous liquid
Odor  Specific slight odor
Odor Threshold  Not available
pH  Not available
Melting Point/Freezing point  Not available
Boiling Point  > 200 °C /13Pa
Flash Point  250 °C
Evaporation rate  Not available
Explosion limit  upper limit %  lower limit %  Not available
Vapor pressure  Not available
Relative vapor density  Not available
Density  0.93~0.96
Volutility  Not available
Solubility  Insoluble in water. Soluble in ethanol, ether, acetone, hexane, benzene, chloroform etc.

Octanol · water partition coefficient  Not available
Autoignition temperature  282 °C
Decomposition temperature  Not available
Viscosity coefficient  Not available

10 Stability and Reactivity

Stability  Stable at standard temperatures and pressure.
Possibility of Hazardous Reactions  Not available
Flammability  Flammable
Oxidation  Mildly react with air, oxygen, oxidants etc.
Reactivity  Not available
<table>
<thead>
<tr>
<th>Conditions to Avoid</th>
<th>Avoid to expose to high temperature, direct sunlight. If possible, keep in cool and dark space.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatibility</td>
<td>Avoid contact with strong oxidizing agents and strong acids.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Not available</td>
</tr>
</tbody>
</table>

### 11 Toxicological Information

<table>
<thead>
<tr>
<th>Acute Toxicity</th>
<th>LD50 &gt;5g/kg (rat oral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion / irritation</td>
<td>No irritating (human, rabbit) ¹)</td>
</tr>
<tr>
<td>Serious eye damage / eye irritation</td>
<td>No irritating (rabbit) ¹)</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>No skin sensitization (human, guinea pig) ¹)</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Negative (Chinese hamster ovarian cell) ¹)</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Negative ²)</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Negative ³, ⁴)</td>
</tr>
<tr>
<td>Teratogenesis</td>
<td>Negative ⁵)</td>
</tr>
<tr>
<td>Specific target organ / Whole body toxicity</td>
<td></td>
</tr>
<tr>
<td>Single exposure</td>
<td>Not available</td>
</tr>
<tr>
<td>Repeated exposure</td>
<td>Repeated dose toxicity: Nothing abnormal detected (at 3.5g/kg feeding stuff, rat oral) ⁶) Chronic toxicity: Very less toxic ⁶, ⁷)</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not available</td>
</tr>
</tbody>
</table>

### 12 Ecological Information

| Ecotoxicity | Not available |
| Persistent/Degradability | Not available |
| Bioaccumulation potential | Not available |
| Migratory property | Not available |
| Soil toxicity | Not available |
| Impact on the ozone layer | Not available |
| Environmental criteria | None |

### 13 Disposal Considerations

**Disposal Methods**
- Dispose in accordance with all applicable regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Contaminated vessel and package: Wash and recycle use or dispose in accordance with all applicable regulations.

### 14 Transport Information

<table>
<thead>
<tr>
<th>International regulation</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT: UN No.</td>
<td></td>
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<tr>
<td>Air-Transportation: IATA/ICAO:</td>
<td>None</td>
</tr>
<tr>
<td>Sea-Transportation: IMO/IMDG:</td>
<td>None</td>
</tr>
<tr>
<td>Japanese regulation</td>
<td></td>
</tr>
<tr>
<td>Land regulation</td>
<td>Transport in accordance with Fire defense law and Road trucking vehicle Law</td>
</tr>
<tr>
<td>Marine regulation</td>
<td>Transport in accordance with Marine safety act.</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>None</td>
</tr>
<tr>
<td>Aviation regulation</td>
<td>None</td>
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</tbody>
</table>
### 15 Regulatory Information

**USA Federal regulations**
- **TSCA Inventory:** CAS No. 119-13-1
- **SARA 311/312 Hazard Categories:** Not considered a hazard.
- **SARA 313 Toxic Chemicals:** None
- **SARA 302 Extremely Hazardous Substances:** None
- **HMIS-Rating (0-4)HMIS:** Health: 1  Flammability: 1  Reactivity: 0
  
  Rating: None=0, Least=1, Moderate=2, High=3, Extremely high=4

  **Personal Protection Index:** C

**California Proposition 65 Components:** None

**Domestic regulation (Japanese government)**
- **CHRIP**
  - MITI No. 9-864
- **Fire Defense Law**
  - Correspond
- **Medicines Act**
  - None
- **Food Hygiene Law**
  - Correspond
- **Pollutant Release and Transfer Register (PRTR)**
  - None
- **Poisonous and Deleterious Substances Control Law**
  - None

**EU Regulations**
- **EINECS:** No. 204-299-0
- **SVHC:** None

### 16 Other Information

**Reference**

8. Listed on “The Japanese Specifications and Standards for Food Additives”.

**Full description of some acronyms:**
- **GHS:** Globally Harmonized System of Classification and Labeling of Chemicals
- **CAS:** Chemical Abstracts Service
- **IMDG:** International Maritime Dangerous Goods
- **ICAO:** International Civil Aviation Organization
- **SARA:** Superfund Amendments and Reauthorization Act
- **TSCA:** Toxic Substance Control Act
- **HMIS:** Hazardous Materials Identification System

**Disclaimer:**
The information contains herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.