1. Identification of the substance/mixture and of the company/undertaking

Identification of the substance/preparation

<table>
<thead>
<tr>
<th>Product code</th>
<th>21041025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>D-MEM/F-12 (1X), liquid, 1:1</td>
</tr>
</tbody>
</table>

Company/Undertaking Identification

<table>
<thead>
<tr>
<th>Life Technologies</th>
<th>Life Technologies Japan Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5791 Van Allen Way</td>
<td>Sumitomo Fudosan Mita Twin Bldg. East Wing</td>
</tr>
<tr>
<td>PO Box 6482</td>
<td>4-2-8 Shibaura, Minato-ku</td>
</tr>
<tr>
<td>Carlsbad, CA 92008</td>
<td>Tokyo 108-0023</td>
</tr>
<tr>
<td>+1 760 603 7200</td>
<td>Japan</td>
</tr>
<tr>
<td></td>
<td>TEL +81-3-6832-9300</td>
</tr>
</tbody>
</table>

24 hour Emergency Response:

| 866-536-0631 |
| 301-431-8585 |
| Outside of the U.S. ++1-301-431-8585 |

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

2. Hazards identification

GHS - Classification

Signal word

not hazardous

Health hazard

not hazardous

Physical hazards

not hazardous
Principle Routes of Exposure/ Potential Health effects

**Inhalation**
May be harmful by inhalation

**Skin**
May cause skin irritation in susceptible persons.

**Ingestion**
May be harmful if swallowed.

**Sensitisation**
none

**Carcinogenic effects**
none

**Mutagenic effects**
none

**Reproductive toxicity**
none

**Target Organ Effects**
No known effects under normal use conditions

### 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds, inorganic</td>
<td>7758-89-6</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Zinc compounds, inorganic</td>
<td>7646-85-7</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

### 4. FIRST AID MEASURES

**Skin contact**
Rinse with plenty of water. If symptoms arise, call a physician.

**Eye contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

**Ingestion**
Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Do not induce vomiting without medical advice.

**Inhalation**
Move to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration.

**Notes to physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**

**Special protective equipment for firefighters**
Wear self-contained breathing apparatus and protective suit.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment.

**Methods for cleaning up**
Soak up with inert absorbent material.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so.

See Section 12 for additional information.
7. HANDLING AND STORAGE

Handling
Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

Storage
Keep in a dry, cool and well-ventilated place.

8. Exposure controls/personal protection

Exposure limits
We are not aware of any national exposure limit.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Japan REL - Ceiling Limits</th>
<th>Japan OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds, inorganic</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7758-89-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc compounds, inorganic</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7646-85-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Engineering measures
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment
Personal Protective Equipment requirements are dependent on the user institution's risk assessment and are specific to the risk assessment for each laboratory where this material may be used.

Respiratory protection
In case of insufficient ventilation wear suitable respiratory equipment.

Hand protection
Impervious gloves.

Eye protection
Safety glasses with side-shields.

Skin and body protection
Lightweight protective clothing.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
Prevent product from entering drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information
Form: liquid
Appearance: No information available
Odour: No information available

<table>
<thead>
<tr>
<th>Property</th>
<th>°C</th>
<th>°F</th>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point/Range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidising properties</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Materials to avoid
No dangerous reaction known under conditions of normal use.

Hazardous decomposition products
None under normal use.

Polymerisation
Hazardous polymerisation does not occur.
11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not hazardous

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 (oral, rat/mouse)</th>
<th>LD50 (dermal, rat/rabbit)</th>
<th>LC50 (inhalation, rat/mouse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds, inorganic</td>
<td>= 140 mg/kg (Rat)</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Zinc compounds, inorganic</td>
<td>= 350 mg/kg (Rat)</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Principle Routes of Exposure/
Potential Health effects

Eyes May cause eye irritation with susceptible persons.
Skin May cause skin irritation in susceptible persons.
Inhalation May be harmful by inhalation
Ingestion May be harmful if swallowed.

Carcinogenic effects none
Mutagenic effects none
Reproductive toxicity none
Sensitisation none

Target Organ Effects No known effects under normal use conditions

12. ECOLOGICAL INFORMATION

Ecotoxicity effects No information available.
Mobility No information available.
Biodegradation Inherently biodegradable.
Bioaccumulation Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

IATA

Proper shipping name Not classified as dangerous in the meaning of transport regulations.
Hazard class None
Subsidiary Class None
Packing group None
UN-No None

15. Regulatory information

Japan Inventories Complies
Copper compounds, inorganic

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight percent</th>
<th>Japan ISHL</th>
<th>Japan PRTR</th>
<th>Japan PDSCL</th>
<th>Japan Fire Service Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds,</td>
<td>&gt;0.1</td>
<td>Not Listed</td>
<td></td>
<td>Deleterious Enforcement</td>
<td>Not listed</td>
</tr>
<tr>
<td>inorganic</td>
<td></td>
<td></td>
<td></td>
<td>Order 72</td>
<td></td>
</tr>
<tr>
<td>Zinc compounds,</td>
<td>&gt;0.1</td>
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<td>&gt;=1%</td>
<td>Deleterious Enforcement</td>
<td>Not listed</td>
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<tr>
<td>inorganic</td>
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<td></td>
<td></td>
<td>Order 1</td>
<td></td>
</tr>
</tbody>
</table>

Zinc compounds, inorganic

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight percent</th>
<th>Japan - Air Pollution Control Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds,</td>
<td>&lt;0.01</td>
<td>Present</td>
</tr>
<tr>
<td>inorganic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc compounds,</td>
<td>&lt;0.01</td>
<td>Present</td>
</tr>
<tr>
<td>inorganic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight percent</th>
<th>Japan - Fire Service Law - Designation of Materials Requiring Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper compounds,</td>
<td>&lt;0.01</td>
<td>200kg TQ</td>
</tr>
<tr>
<td>inorganic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc compounds,</td>
<td>&lt;0.01</td>
<td>200kg TQ</td>
</tr>
<tr>
<td>inorganic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

This product formulation has been reviewed against the following Japan regulations: Fire Service Law, Poisonous and Deleterious Substance Control Law, Pollutant Release and Transfer Register, Industrial Safety and Health Law, Chemical Substance Control Law, Prohibition of Chemical Weapons and Regulation Specific Chemicals, Water Pollution Control Law, Air Pollution Control Law, Narcotics and Psychotropic Control Act, Stimulants Control Act, and Cannabis Control Act.

Reason for Revision

(M)SDS sections updated

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End of Safety Data Sheet