SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Product name: PPM™ (Plant Preservative Mixture)

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Use of the substance/mixture: Preservative for plant tissue culture media

1.3. Details of the supplier of the safety data sheet
- Plant Cell Technology, Inc.
  1823 Jefferson Street, NW
  Washington, DC 20036
  (202) 778-8522

1.4. Emergency telephone number
- Emergency number: (202) 778-8522

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
- Classification (GHS-US)
  - Resp. Sens.: H334
  - Skin Sens.: H317

2.2. Label elements
- GHS-US labeling
  - Hazard pictograms (GHS-US): GHS08
  - Signal word (GHS-US): Danger
  - Hazard statements (GHS-US): H317 - May cause an allergic skin reaction
  - H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
  - Precautionary statements (GHS-US): P261 - Avoid breathing vapors
  - P272 - Contaminated work clothing must not be allowed out of the workplace
  - P280 - Wear protective equipment
  - P284 - In case of inadequate ventilation wear respiratory protection
  - P302 + P352 - If on skin: Wash with plenty of water
  - P304 + P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
  - P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
  - P342 + P311 - If experiencing respiratory symptoms: Call a poison center or doctor/physician
  - P362 + P364 - Take off contaminated clothing and wash it before reuse

2.3. Other hazards
- No additional information available

2.4. Unknown acute toxicity (GHS-US)
- None of the ingredients are of unknown toxicity

SECTION 3: Composition/information on ingredients

3.1. Substance
- Not applicable – product is a mixture

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary ingredient*</td>
<td>Proprietary*</td>
<td>&lt; 0.5*</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Inhalation: dust, mist), H332</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1B, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Resp. Sens. 1, H334</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</td>
</tr>
</tbody>
</table>

*This information has been withheld as a trade secret
SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the product label where possible).

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Contain all water used for fire-fighting to the greatest extent possible.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Dilute with 100x water.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing vapors.

Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place. Ideal storage temperature is 39° F (4° C). Do not store at temperatures in excess of 70° F (21° C).

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

09/30/2015  EN (English US)  2/6
**PPM™ (Plant Preservative Mixture)**

**Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

7.3. **Specific end use(s)**

No additional information available

**SECTION 8: Exposure controls/personal protection**

8.1. **Control parameters**

<table>
<thead>
<tr>
<th>Proprietary ingredient</th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.2. **Exposure controls**

- **Appropriate engineering controls**: Ensure that proper ventilation is provided.
- **Personal protective equipment**: Avoid all unnecessary exposure.
- **Hand protection**: Wear protective gloves.
- **Eye protection**: Chemical goggles or safety glasses.
- **Respiratory protection**: In case of inadequate ventilation wear respiratory protection.
- **Other information**: Do not eat, drink or smoke during use.

**SECTION 9: Physical and chemical properties**

9.1. **Information on basic physical and chemical properties**

- **Physical state**: Liquid
- **Color**: Clear to light amber
- **Odor**: Mild
- **Odor threshold**: No data available
- **pH**: 3.8
- **Melting point**: No data available
- **Freezing point**: No data available
- **Boiling point**: No data available
- **Flash point**: Not applicable
- **Relative evaporation rate (butyl acetate=1)**: No data available
- **Flammability (solid, gas)**: Not applicable
- **Explosion limits**: No data available
- **Explosive properties**: No data available
- **Oxidizing properties**: No data available
- **Vapor pressure**: No data available
- **Relative density**: No data available
- **Relative vapor density at 20 °C**: No data available
- **Solubility**: Infinite in water
- **Log Pow**: No data available
- **Log Kow**: No data available
- **Auto-ignition temperature**: No data available
- **Decomposition temperature**: No data available
- **Viscosity**: No data available
- **Viscosity, kinematic**: No data available
- **Viscosity, dynamic**: No data available

9.2. **Other information**

No additional information available

**SECTION 10: Stability and reactivity**

10.1. **Reactivity**

No additional information available

10.2. **Chemical stability**

Not established.

10.3. **Possibility of hazardous reactions**

Not established.
10.4.  Conditions to avoid
Direct sunlight. Extremely high or low temperatures.

10.5.  Incompatible materials
Strong acids. Strong bases.

10.6.  Hazardous decomposition products
Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1.  Information on toxicological effects
Likely routes of exposure: Skin and eye contact; Ingestion; Inhalation
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPM™ (Plant Preservative Mixture)</td>
<td>LD50 oral rat</td>
<td>30 g/kg</td>
</tr>
<tr>
<td></td>
<td>ATE US (oral)</td>
<td>30000.000 mg/kg body weight</td>
</tr>
<tr>
<td>Proprietary ingredient</td>
<td>LD50 oral rat</td>
<td>481 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LC50 inhalation rat (mg/l)</td>
<td>1.23 mg/l/4h</td>
</tr>
<tr>
<td></td>
<td>ATE US (oral)</td>
<td>481.000 mg/kg body weight</td>
</tr>
<tr>
<td></td>
<td>ATE US (vapors)</td>
<td>1.230 mg/l/4h</td>
</tr>
<tr>
<td></td>
<td>ATE US (dust, mist)</td>
<td>1.230 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
pH: 3.8

Serious eye damage/irritation: Not classified
pH: 3.8

Respiratory or skin sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified
Potential Adverse human health effects and symptoms: No additional information available
Symptoms/injuries after inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

SECTION 12: Ecological information

12.1.  Toxicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary ingredient</td>
<td></td>
</tr>
<tr>
<td>LC50 fish 1</td>
<td>1.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>4.71 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>0.12 - 0.3 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])</td>
</tr>
</tbody>
</table>

12.2.  Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPM™ (Plant Preservative Mixture)</td>
<td>Persistence and degradability</td>
</tr>
</tbody>
</table>

12.3.  Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPM™ (Plant Preservative Mixture)</td>
<td>Bioaccumulative potential</td>
</tr>
<tr>
<td>Proprietary ingredient</td>
<td>Log Pow</td>
</tr>
<tr>
<td></td>
<td>-0.71 - 0.75 (at 20 °C)</td>
</tr>
</tbody>
</table>

12.4.  Mobility in soil
No additional information available
Other adverse effects
Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Dispose in a safe manner in accordance with local, state, and federal regulations.

Ecology - waste materials
Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not regulated for transport

Additional information
ADR
No additional information available

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>PPM™ (Plant Preservative Mixture)</th>
<th>Immediate (acute) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
<td>Proposition ingredient</td>
</tr>
<tr>
<td>Listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
<td>Properied ingredient</td>
</tr>
<tr>
<td>EPA TSCA Regulatory Flag</td>
<td>S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA

Proprietary ingredient
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Proprietary ingredient
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Proprietary ingredient
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECS (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

15.3. US State regulations
No additional information available
**SECTION 16: Other information**

Other information: None.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 (Inhalation:dust,mist)</td>
<td>Acute toxicity (inhalation:dust,mist) Category 4</td>
</tr>
<tr>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral) Category 4</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation Category 1</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Respiratory sensitisation Category 1</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation Category 1B</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitization Category 1</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H334</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.