



| Murashige & Skoog Basal Salts |           |
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| Safety Data Sheet             | MSP06-SDS |

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## 1. Identification

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**Production Name:** Murashige & Skoog Basal Salts. Modification 6. With Macronutrients, Micronutrients and Gamborg's Vitamins.

**Catalog Number:** MSP06

**Company:** Plant Cell Technology

**Address:** 836 South 100 East, Smithfield UT 84335

**Telephone:** 435.534.8700

**Emergency Contact, US:** CHEMTREC 800.424.9300 (24/7)

**Emergency Contact, International:** CHEMTREC 703.527.3887 (24/7)

**Recommended Use:** For research and laboratory use only.

**Restrictions on Use:** This product is intended for research and laboratory use only. This product is not to be used as human or animal therapeutics, cosmetics, pesticidal products, food additives, or household chemicals.

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## 2. Hazards Identification

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### Classification of the Substance or Mixture

**GHS Classification:**

H272 – Oxidizing Solids (Category 2)

H315 – Skin Irritation (Category 2)

H319 – Serious Eye Damage (Category 2A)

H335 – Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation (Category 3)

H360 – Reproductive Toxicity (Category 1B)

H373 – Specific Target Organ Toxicity, Repeated Exposure (Category 2)

### GHS Label Elements, Including Precautionary Statements

**Signal Word:** Danger

**Hazard Statements:**

H272 – May intensify fire; oxidizer.

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H315 – Causes skin irritation.

H319 – Causes serious eye irritation.

H335 – May cause respiratory irritation.

H360 – May damage fertility or the unborn child.

H373 – May cause damage to organs through prolonged or repeated exposure.

**Precautionary Statements:**

P203 – Obtain, read and follow all safety instructions before use.

P210 - Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 – Keep away from clothing and other combustible materials.

P221 – Take any precaution to avoid mixing with combustibles.

P260 – Do not breathe dust/fumes/gas/mist/vapors/spray.

P264 – Wash skin thoroughly after handling.

P280 – Wear protective gloves/eye protection/face protection.

P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P318 – If exposed or concerned, get medical advice.

P319 – Get medical help if you feel unwell.

P337 + P313 – If eye irritation persists: Get medical advice/attention

P370 + P378 – In case of fire: Use appropriate extinguishing methods to extinguish.

P405 – Store locked up.

P501 – Dispose of contents/container to appropriate waste containers.

**Pictograms:**



### 3. Composition / Information on Ingredients

**Synonyms:** N/A

**Formula:** N/A

**Molecular Weight:** N/A

**CAS-No:** N/A

**EC-No:** N/A

| Component                      | CAS Number | EC Number | Concentrations (% w/w) | Classification                                                                                                                                                                                                                                                                                                |
|--------------------------------|------------|-----------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ammonium Nitrate               | 6484-52-2  | 229-347-8 | 37.139%                | Oxidizing Solid 3; Skin corrosion 2; Serious eye damage 2; Respiratory tract irritation toxicity 3: H272, H315, H319, H335                                                                                                                                                                                    |
| Boric Acid                     | 10043-35-3 | 233-139-2 | 0.140%                 | Reproductive Toxicity: H360                                                                                                                                                                                                                                                                                   |
| Calcium Chloride, Anhydrous    | 10043-52-4 | 233-140-8 | 7.477%                 | Serious eye damage 2: H319                                                                                                                                                                                                                                                                                    |
| Cobalt Chloride, Hexahydrate   | 7791-13-1  | 231-589-4 | 0.001%                 | Acute toxicity 4; May cause allergic reactions; Respiratory Sensitivity 1; Suspected of causing genetic defects; May cause cancer; May damage fertility or unborn child; Hazardous to aquatic environment, acute; Hazardous to aquatic environment, long-term: H302, H317, H334, H341, H350, H360, H400, H410 |
| Cupric Sulfate, Pentahydrate   | 7758-99-8  | 231-847-6 | 0.001%                 | Acute toxicity 4; Skin corrosion 2; Serious eye damage 2; Hazardous to aquatic environment, acute; Hazardous to aquatic environment, long-term: H302; H315; H319; H400; H410                                                                                                                                  |
| EDTA, Disodium Salt, Dihydrate | 6381-92-6  | 205-358-3 | 0.839%                 | Oral toxicity, acute 5; Skin corrosion 2; Serious eye damage 2; Respiratory tract irritation toxicity 3: H302; H315; H319; H335                                                                                                                                                                               |
| Ferrous Sulfate, Heptahydrate  | 7782-63-0  | 231-753-5 | 0.626%                 | Acute toxicity 4; Skin corrosion 2; Serious eye damage 2: H302; H315; H319                                                                                                                                                                                                                                    |
| Manganese Sulfate, Monohydrate | 10034-96-5 | 232-089-9 | 0.380%                 | Organ toxicity, repeated exposure 2; Hazardous to aquatic environment, long-term 2: H373, H411                                                                                                                                                                                                                |

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| Component                  | CAS Number | EC Number | Concentrations (% w/w) | Classification                                                                                          |
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| Nicotinic Acid             | 59-67-6    | 200-441-0 | 0.023%                 | Serious eye damage 2; Hazardous to aquatic environment, long-term 3: H319; H402                         |
| Potassium Iodide           | 7681-11-0  | 231-659-4 | 0.019%                 | Acute toxicity 4; Skin corrosion 2; Serious eye damage 2: H302; H315; H319                              |
| Potassium Nitrate          | 7757-79-1  | 231-818-8 | 42.766%                | Oxidizing Solid 3: H272                                                                                 |
| Zinc Sulfate, Heptahydrate | 7446-20-0  | 231-793-3 | 0.194%                 | Acute toxicity 4; Serious eye damage 1; Hazardous to aquatic environment, long-term 1: H302; H318; H410 |

## 4. First Aid Measures

**General Advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### Route of Exposure

**If Swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention.

**In Case of Skin Contact:** Wash area thoroughly with soap and water. Remove and wash contaminated clothing. Get medical attention if irritation persists.

**In Case of Eye Contact:** In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Ensure adequate flushing by separating the eyelids. Get medical attention if irritation persists.

**If Inhaled:** Safely remove victim to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway. Get medical attention.

**Most Important Symptoms and Effects, Both Acute and Delayed:** The most important known symptoms and effects are described in Section 2 (Hazards Identification) and/or in Section 11 (Toxicological Information).

**Recommendation for Immediate Medical Care and Special Treatment Needed:** No Data Available



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## 5. Firefighting Measures

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**Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media:** No Data Available

**Special Protective Equipment and Precautions for Firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Special Hazards Arising from the Substance or Mixture:** Calcium oxide, Carbon oxides, Hydrogen chloride gas, Magnesium oxide, Nitrogen oxides, Phosphorus oxides, Potassium oxides, Sulfur oxides

**Additional Information:** No Data Available

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## 6. Accidental Release Measures

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**Personal Precautions, Protective Equipment and Emergency Procedures:** Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

**Environmental Precautions:** Prevent further leakage or spillage if safe to do so. See Section 2 (Hazards Identification) for more information.

**Methods and Material for Containment and Cleanup:** Wear suitable protective clothing. Avoid dust formation. Carefully sweep up and remove. Place material in a dry container and cover. Remove from the area. Flush spill area with water.

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## 7. Handling and Storage

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**Precautions for Safe Handling:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.

**Conditions for Safe Storage:** Keep in a tightly closed container and store in a cool, dry, and well-ventilated area.

Moisture sensitive.

**Recommended Storage Temperature:** 2° to 8°C



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**Incompatibilities:** Borane/boron oxides, Calcium chloride is attacked by bromine trifluoride, Calcium oxide, Methyl vinyl ether, Powdered metals, Reducing agents, Strong acids, Strong oxidizing agents, Zinc

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## 8. Exposure Controls / Personal Protection

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**OSHA Permissible Exposure Limits (PELs):** Follow all applicable federal, state, and local regulations in regard to Permissible Exposure Limits (PELs).

**ACGIH Threshold Limit Values (TLVs):** Follow all applicable federal, state, and local regulations in regard to Threshold Limit Values (TLVs).

**Engineering Controls:** Practice general industrial hygiene. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment (PPE):**

**Eye/Face Protection:** Face shield or appropriate safety glasses. Use equipment for eye protection tested and approved under appropriate standards.

**Skin Protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Respiratory Protection:** Respiratory protection is not required. Where protection from nuisance levels of dusts or vapors is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate standards.

**Body Protection:** Wear lab coat, gown, or coveralls to protect from exposure.

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## 9. Physical and Chemical Properties

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**Appearance:** White to Yellow Powder

**Odor:** No Data Available

**Boiling Point, Initial:** No Data Available

**Odor Threshold:** No Data Available

**Boiling Range:** No Data Available

**Partition Coefficient:** No Data Available

**Evaporation Rate:** No Data Available

**pH:** 3.5 – 4.5 (4.44 g/L, H<sub>2</sub>O)

**Flammability (Solid, Gas):** No Data Available

**Relative Density:** No Data Available

**Flammability Lower Limit:** No Data Available

**Solubility:** Soluble in Water

**Flammability Upper Limit:** No Data Available

**Specific Gravity:** No Data Available



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**Flash Point:** No Data Available

**Temperature, Auto-Ignition:** No Data Available

**Freezing Point:** No Data Available

**Temperature, Decomposition:** No Data Available

**Melting Point:** No Data Available

**Vapor Density:** No Data Available

**Melting Range:** No Data Available

**Vapor Pressure:** No Data Available

**Viscosity:** No Data Available

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## 10. Stability and Reactivity

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**Reactivity:** No Data Available

**Chemical Stability:** Stable under recommended storage conditions.

**Possibilities of Hazardous Reactions:** No Data Available

**Conditions to Avoid:** Moisture

**Incompatible Materials:** Borane/boron oxides, Calcium chloride is attacked by bromine trifluoride, Calcium oxide, Methyl vinyl ether, Powdered metals, Reducing agents, Strong acids, Strong oxidizing agents, Zinc

**Hazardous Decomposition Products:** Hazardous decomposition products formed under fire conditions. – Calcium oxide, Carbon oxides, Hydrogen chloride gas, Magnesium oxide, Nitrogen oxides, Phosphorus oxides, Potassium oxides, Sulfur oxides

In the event of fire, see Section 5 (Firefighting Measures).

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## 11. Toxicological Information

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**Toxicity:** No Data Available

**Carcinogenicity:**

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive Toxicity:** No Data Available

**Immediate Effects of Exposure:** No Data Available



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**Delayed Effects of Exposure:** No Data Available

**Chronic Effects of Short Term Exposure:** No Data Available

**Chronic Effects of Long Term Exposure:** No Data Available

**Symptoms Associated with Overexposure:** No Data Available

**Specific Target Organ Toxicity – Single Exposure:** No Data Available

**Specific Target Organ Toxicity – Repeated Exposure:** No Data Available

**Target Organs:** None Identified

**Medical Conditions Aggravated by Exposure:** None Identified

**Likely Routes of Exposure:**

**Eye Contact:** Causes serious eye irritation

**Ingestions:** No Data Available

**Inhalation:** May cause respiratory irritation

**Skin Contact:** Causes skin irritation

**NIOSH/RTECS:** Not Available

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## 12. Ecological Information

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**Toxicity:** No Data Available

**Persistence and Degradability:** No Data Available

**Bioaccumulative Potential:** No Data Available

**Mobility in Soil:** No Data Available

**Results of PBT and vPvB:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**Other Adverse Effects:** No Data Available

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## 13. Disposal Considerations

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**Disposal of Product:** Dispose in accordance with all applicable federal, state, and local environmental regulations. See Section 2 (Hazards Identification) for additional guidelines in disposals.

**Disposal of Packaging:** Dispose of as unused product.

## 14. Transport Information

### DOT (US):

Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

UN/NA number: N/A    Class: N/A    Packaging group: N/A    Hazard Label: N/A

Reportable Quantity (RQ): N/A

Poison Inhalation Hazard: N/A

### IMDG:

Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

UN number: N/A    Class: N/A    Packaging group: N/A    Hazard Label: N/A

### IATA:

Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

UN Number: N/A    Class: N/A    Packaging group: N/A    Hazard Label: N/A

## 15. Regulatory Information

**TSCA:** Not Listed

### SARA Title III:

**Section 302 (EHS) Ingredients:** None

**Section 304 (EHS/CERCLA) Ingredients:** None

**Section 311/312 Hazard:** Acute Health Hazard, Chronic Health Hazard, Fire Hazard, Reactivity Hazard

### Section 313 Ingredients:

|                                                    |                           |
|----------------------------------------------------|---------------------------|
| Ammonium Nitrate – CAS-No. 6484-52-2               | Revision Date 1993-04-24  |
| Cobalt Dichloride Hexahydrate – CAS-No.: 7791-13-1 | Revision Date: 2009-07-17 |
| Copper Sulfate Pentahydrate – CAS-No. 7758-99-8    | Revision Date 1993-02-16  |
| Manganese Sulfate Monohydrate – CAS-No. 10034-96-5 | Revision Date 2015-07-08  |
| Potassium Nitrate – CAS-No. 7757-79-1              | Revision Date 2007-03-01  |
| Zinc(II) Sulfate Heptahydrate – CAS-No. 7446-20-0  | Revision Date 1993-02-16  |



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## 16. Other Information

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**Further Information:** All chemicals may pose unknown hazards and should be used with caution. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Plant Cell Technology, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.

### MSP06-SDS Revision Change Summary:

| Rev. | Date      | CR#  | Approved     | Change description |
|------|-----------|------|--------------|--------------------|
| 00   | 28-May-25 | 0082 | C. Gallagher | New Document       |