SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: Murashige & Skoog Basal Salt Mixture
PRODUCT NUMBER: M524
COMPANY INFO: PhytoTech Labs Inc.
14610 W 106th St. Lenexa, KS 66215
Phone: 1-888-449-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442
www.phytotechlab.com

EMERGENCY PHONE NUMBER
(INFOTRAC): 1-800-535-5053 - US Only
1-352-323-3500 - International

RECOMMENDED USE: For Research Use Only

RESTRICTIONS ON USE: Products sold by PhytoTech Labs Inc. are intended for research and laboratory use only.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS Classification:
H272 – Oxidizing solids (Category 3)
H315 – Skin irritation (Category 2)
H319 – Eye irritation (Category 2A)
H335 – Specific target organ toxicity – single exposure – Respiratory system (Category 3)

GHS Label elements, including hazard and precautionary statements:

Pictogram: ⚠️🔥
Signal Word: Warning

Hazard Statements:
H272 – May intensify fire; oxidizer.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H335 – May cause respiratory irritation.

Precautionary Statements:
P221 – Take any precaution to avoid mixing with combustibles.
P280 – Wear protective clothing/protective gloves/eye 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.

Hazards not otherwise classified (HNOC) or not covered by GHS: - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture that contains, but is not limited to, the following components that may cause harm to the user or environment or may be suspected to do so:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Nitrate</td>
<td>6484-52-2</td>
<td>38.1%</td>
<td>No exposure limits established by OSHA or ACGIH</td>
</tr>
<tr>
<td>Potassium Nitrate</td>
<td>7757-79-1</td>
<td>43.87%</td>
<td>No exposure limits established by OSHA or ACGIH</td>
</tr>
<tr>
<td>EDTA, Disodium Salt, Dihydrate</td>
<td>6381-92-6</td>
<td>0.86%</td>
<td>No exposure limits established by OSHA or ACGIH</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>0.0006%</td>
<td>ACGIH TLV: 0.02 mg (Co)/m³</td>
</tr>
<tr>
<td>Cupric Sulfate, Pentahydrate</td>
<td>7758-99-8</td>
<td>0.0006%</td>
<td>NIOSH REL: 1 mg/m³</td>
</tr>
<tr>
<td>Sodium Molybdate(VI), Dihydrate</td>
<td>10102-40-6</td>
<td>0.006%</td>
<td>OSHA PEL: 5 mg(Mo)/m³; ACGIH TLV: 0.5 mg(Mo)/m³</td>
</tr>
<tr>
<td>Manganese Sulfate, Monohydrate</td>
<td>10034-96-5</td>
<td>0.39%</td>
<td>OSHA PEL: 5 mg (Mn)/m³; ACGIH TLV: 0.2 mg (Mn)/m³</td>
</tr>
<tr>
<td>Potassium Iodide</td>
<td>7681-11-0</td>
<td>0.019%</td>
<td>ACGIH TLV: 0.01 mg/m³</td>
</tr>
</tbody>
</table>
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 Entry**

<table>
<thead>
<tr>
<th>Route of Entry</th>
<th>Symptoms</th>
<th>First Aid Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>May cause irritation if swallowed</td>
<td>If swallowed, wash out mouth with water. Never give anything by mouth to an unconscious person. <strong>Get medical attention.</strong></td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause irritation to respiratory tract</td>
<td>Safely remove victim to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. <strong>Get medical attention.</strong></td>
</tr>
<tr>
<td>Eye Contact</td>
<td>Direct contact may cause irritation. May cause redness, tearing, or blurred vision.</td>
<td>Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. <strong>Get medical attention if irritation persists.</strong></td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Irritating. May cause reddening, itching or inflammation.</td>
<td>Wash area thoroughly with soap and water. Remove and wash contaminated clothing. <strong>Get medical attention if irritation persists.</strong></td>
</tr>
</tbody>
</table>

Most Important Symptoms or Effects, Both Acute and Delayed:

See section 2 and/or section 11

Recommendation for Immediate Medical Care and Special Treatment Needed:

No data available

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Water spray, carbon dioxide, dry chemical powder, or appropriate foam. Use extinguishing media suitable for surrounding fire.

Special Protective Equipment and Precaution for Firefighters: In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus. Evacuate the area and fight fire from a safe distance.

Hazardous Combustion Products: No data available

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protection recommended in Section 8. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method of 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. Do not let products enter drains.

7. HANDLING AND STORAGE

Precaution for Safe Handling: Avoid contact with skin and eyes. Avoid dust formation and aerosols. Avoid incompatible substances. Keep away from combustible materials. Wash thoroughly after use.

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

Incompatibilities: No data available

Recommended Storage Temperature: 2-8°C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
OSHA’s Permissible Exposure Limits (PELs):
- Manganese Sulfate, Monohydrate: 5 mg (Mn)/m³
- Sodium Molybdate(VI), Dihydrate: 5 mg (Mo)/m³

ACGIH Threshold Limit Values (TLVs):
- Sodium Molybdate(VI), Dihydrate: 0.5 mg (Mo)/m³
- Cobalt Chloride, Hexahydrate: 0.02 mg (Co)/m³
- Manganese Sulfate, Monohydrate: 0.2 mg (Mn)/m³
- Potassium Iodide: 0.01 mg/m³

Engineering Controls: Handle in accordance to general industrial hygiene and safety practice.

Personal Protective Equipment (PPE):
- Eye/Face Protection: Chemical safety glasses or goggles. Have eye-washing facilities readily available where eye contact can occur.
- Skin Protection: Protective gloves
- Body Protection: Lab coat
- Respiratory Protection: Respiratory protection is not required. Use N95 (US) or type P1 (EN 143) dust mask where dust level is nuisance. A NIOSH/MSHA approved air purifying respirator is recommended where airborne concentrations are expected to exceed exposure limits. Protection provided by purifying respirators is limited.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-White to Yellow Powder</td>
</tr>
<tr>
<td>pH (4.33 g/L)</td>
<td>3.5 – 4.5</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in Water</td>
</tr>
<tr>
<td>Melting Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial Boiling Point and Boiling Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point (Closed Cup)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammable Limits:</td>
<td></td>
</tr>
<tr>
<td>Upper (%) – No data available</td>
<td></td>
</tr>
<tr>
<td>Lower (%) – No data available</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>No data available</td>
</tr>
<tr>
<td>Chemical Stability</td>
<td>Stable under normal conditions of use</td>
</tr>
<tr>
<td>Possibility of Hazard Reactions</td>
<td>No data available.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>No data available.</td>
</tr>
<tr>
<td>Incompatibles Materials</td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas,</td>
</tr>
</tbody>
</table>
Potassium oxides, Sodium oxides, Cobalt/cobalt oxides, Molybdenum oxides, Copper oxides

11. TOXICOLOGICAL INFORMATION

Toxicity: 
- LD$_{50}$ (Oral-Rat)(mg/Kg): No data available
- LD$_{50}$ (IP-Mouse)(mg/Kg): No data available
- LD$_{50}$ (Dermal-Rabbit)(mg/Kg): No data available

Carcinogenicity:
- NTP: No
- IARC: No
- OSHA Reg: No

Reproductive Toxicity: No data available

Specific Target Organ Toxicity:
- Single Exposure: No data available
- Repeated Exposure: No data available

Target Organs: No data available

Routes of Entry: Ingestion, inhalation, skin and eye contact

NIOSH/RTECS NO: Not listed

*To the best of our knowledge the toxicological properties of this product have not been thoroughly investigated.*

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

Other Adverse Effects: No data available

13. DISPOSAL CONSIDERATION

Disposal Procedure: Dispose in accordance with all applicable federal, state, and local environmental regulations.

14. TRANSPORT INFORMATION

**Domestic (D.O.T.):**
- Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
- Hazard Class: N/A
- UN/NA: N/A
- Labels: N/A

**International:**
- IMDG: Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
  - Hazard Class: N/A
  - UN/NA: N/A
  - Labels: N/A
- IATA: Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)
  - Hazard Class: N/A
UN/NA: N/A
Labels: N/A

15. REGULATORY INFORMATION

TSCA: No

SARA TITLE III:
Section 302 (EHS) Ingredients: No
Section 313 Ingredients: Yes
CAS No.
Ammonium Nitrate 6484-52-2
Potassium Nitrate 7757-79-1

Section 304 (EHS/CERCLA) Ingredients: No

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

California Proposition 65 List: None of the components in this product are known to cause cancer or reproductive toxicity

Massachusetts Right To Know Components:
CAS No.
Ammonium Nitrate 6484-52-2
Potassium Nitrate 7757-79-1

New Jersey Right to Know Components:
CAS No.
Ammonium Nitrate 6484-52-2
Potassium Nitrate 7757-79-1

Pennsylvania Right to Know Components:
CAS No.
Ammonium Nitrate 6484-52-2
Potassium Nitrate 7757-79-1
Manganese Sulfate 10034-96-5

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Rating:</th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NFPA Rating:</th>
<th>Health</th>
<th>Fire Hazard</th>
<th>Instability</th>
<th>Special Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>OX</td>
</tr>
</tbody>
</table>

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