Murashige & Skoog Basal Salts	
Safety Data Sheet	**MSP33-SDS**

1. Identification

Production Name: Murashige & Skoog Basal Salts. Modification 33. With Macronutrients and Micronutrients. Without Iron.

Catalog Number: MSP33

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.

2. Hazards Identification

Classification of the Substance or Mixture

GHS Classification:

H272 – Oxidizing Solids (Category 3)

H315 – Skin Corrosion/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.

H315 – Causes skin irritation.

H319 – Causes serious eye irritation.

H335 – May cause respiratory irritation.

H360 – May damage fertility or the unborn child.

H373 – May causes 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.

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

P264 + P265 – Wash hands thoroughly after handling. Do not touch eyes.

P271 – Use only outdoors or in a well-ventilated area.

P280 – Wear protective gloves/eye protection/face 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.

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.

P332 + P317 – If skin irritation occurs: Get medical help.

P337 + P317 – If eye irritation persists: Get medical help.

P362 + P364 – Take off contaminated clothing and wash it before reuse.

P370 + P378 – In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P403 + P233 – Store in a well-ventilated place. Keep container tightly closed.

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	38.680%	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	0.145%	Reproductive Toxicity: H360
Calcium Chloride, Anhydrous	10043-52-4	233-140-8	7.788%	Serious eye damage 2: H319
Cobalt Chloride, Hexahydrate	7791-13-1	231-589-4	0.001%	Acute toxicity 4; Skin sensitization 1; Respiratory sensitization 1; Germ cell mutagenicity 2; Carcinogenicity 1B; Reproductive toxicity 1B; Hazardous to aquatic environment, acute hazard 1; Hazardous to aquatic environment, long-term hazard 1: 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 hazard 1; Hazardous to aquatic environment, long-term hazard 1: H302; H315; H319; H400; H410
Manganese Sulfate, Monohydrate	10034-96-5	232-089-9	0.396%	Organ toxicity, repeated exposure 2; Hazardous to aquatic environment, long-term hazard 2: H373; H411
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	44.541%	Oxidizing Solid 3: H272

Component	CAS Number	EC Number	Concentrations (%, w/w)	Classification
Zinc Sulfate, Heptahydrate	7446-20-0	231-793-3	0.202%	Acute toxicity 4; Serious eye damage 1; Hazardous to aquatic environment, long-term hazard 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

5. Firefighting Measures

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, Hydrogen chloride gas, Magnesium oxide, Phosphorous oxides, Potassium oxides, Nitrogen oxides, Sulfur oxides

Additional Information: No Data Available

6. Accidental Release Measures

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.

7. Handling and Storage

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

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

8. Exposure Controls / Personal Protection

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.

9. Physical and Chemical Properties

Appearance: White to Yellow Powder

Boiling Point, Initial: No Data Available

Boiling Range: No Data Available

Evaporation Rate: No Data Available

Flammability (Solid, Gas): No Data Available

Flammability Lower Limit: No Data Available

Flammability Upper Limit: No Data Available

Flash Point: No Data Available

Freezing Point: No Data Available

Melting Point: No Data Available

Melting Range: No Data Available

Odor: No Data Available

Odor Threshold: No Data Available

Partition Coefficient: No Data Available

pH: No Data Available

Relative Density: No Data Available

Solubility: Soluble in Water

Specific Gravity: No Data Available

Temperature, Auto-Ignition: No Data Available

Temperature, Decomposition: No Data Available

Vapor Density: No Data Available

Vapor Pressure: No Data Available

Viscosity: No Data Available

10. Stability and Reactivity

Reactivity: No Data Available

Chemical Stability: Stable under recommended storage conditions.

Possibilities of Hazardous Reactions:

Risk of explosion with: Acetic anhydride with nitric acid; Alkali metals; Aluminum; Aluminum chloride; Ammonia; Ammonium compounds; Antimony; Barium nitrate; Bismuth;

Cadmium; Carbides; Charcoal; Chlorates; Chlorites; Chromium; Combustible substances; Copper; Copper compounds; 2,4 Dinitrotoluene; Esters; Hydrocarbons; Hypochlorous acid; Iron; Iron(III) compounds; Lead; Magnesium; Manganese; Metallic oxides with charcoal; Mild steel in powder form; Nickel; Nitro compounds; Oils; Organic nitro compounds; Organic substances; Perchlorates; Potassium; Potassium permanganate; Powdered aluminum; Powdered metals; Reducing agents; Rust; Sodium; Sodium hypochlorite; Sugars; Sulfur; Tin; Urea; Water with heat; Wood/Sawdust; Zinc

Risk of ignition or formation of inflammable gases or vapors with: Acetic acid with heat; Metals; Nitrites; Phosphorus; Potassium dichromate

Exothermic reaction with: Acids; Alkalines; Metallic chlorides; Nonmetals; Organic nitro compounds; Oxidizing agents; Salts of oxyhalogenic acids; Sulfides

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, Hydrogen chloride gas, Magnesium oxide, Phosphorous oxides, Potassium oxides, Nitrogen oxides, Sulfur oxides

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

11. Toxicological Information

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

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

12. Ecological Information

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

13. Disposal Considerations

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 lll:

Section 302 (EHS) Ingredients: None

Section 304 (EHS/CERCLA) Ingredients: None

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

Potassium Nitrate – CAS-No. 7757-79-1 Revision Date 2007-03-01

Manganese Sulfate Monohydrate – CAS-No. 10034-96-5 Revision Date 2015-07-08

Zinc(II) Sulfate Heptahydrate – CAS-No. 7446-20-0 Revision Date 1993-02-16

16. Other Information

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.

MSP33-SDS Revision Change Summary:

Rev.	Date	CR#	Approved	Change description
00	28-May-25	0088	C. Gallagher	New Document