



MATERIAL SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: Linsmaier & Skoog Basal Medium
SYNONYMS: Murashige & Skoog Minimal Organics (MSMO)
PRODUCT NUMBER: L689
CAS NO: Not listed
NIOSH/RTECS NO: Not listed
COMPANY INFO: *PhytoTechnology Laboratories*
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2. COMPOSITION/INFORMATION ON INGREDIENTS

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

Ingredient	CAS Number	Percent	Hazardous
Ammonium Nitrate	6484-52-2	37.24 %	No exposure limits established by OSHA or ACGIH
Potassium Nitrate	7757-79-1	42.88 %	No exposure limits established by OSHA or ACGIH
EDTA, Disodium Salt, Dihydrate	6381-92-6	0.84 %	No exposure limits established by OSHA or ACGIH
Cobalt Chloride, Hexahydrate	7791-13-1	0.0006 %	No exposure limits established by OSHA or ACGIH
Cupric Sulfate, Pentahydrate	7758-99-8	0.0006 %	No exposure limits established by OSHA or ACGIH
Sodium Molybdate(VI), Dihydrate	10102-40-6	0.006 %	OSHA PEL: 5 mg (Mo)/m ³ ; ACGIH TLV: 5 mg (Mo)/m ³
Manganese Sulfate, Monohydrate	10034-96-5	0.38 %	OSHA PEL: 5 mg (Mn)/m ³
Potassium Iodide	7681-11-0	0.019 %	No exposure limits established by OSHA or ACGIH
Boric Acid	10043-35-3	0.14 %	No exposure limits established by OSHA or ACGIH

3. PHYSICAL & CHEMICAL PROPERTIES

Product Description: Linsmaier & Skoog Basal Medium
Formula: N/A
Molecular Weight: N/A
Storage Temperature: 2 to 6 C
pH (4.43 g/L): 3.5 – 4.5
Vapor Density: N/A
Melting Point: N/A
Specific Gravity: N/A
Solubility: Soluble in Water
Appearance: Off-white to yellow powder
Odor: Odorless

4. HAZARDS IDENTIFICATION

Label Hazard Warnings: Contact with combustible material may cause fire. Irritating to eyes, respiratory system, and skin
Label Precautionary Statements: Keep away from combustible material. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective

PRODUCT NAME: Linsmaier & Skoog Basal Medium
PRODUCT NUMBER: L689

Page #: 1 of 4
Last Revised: 23 Dec 2009

clothing.

Laboratory Protective Equipment: Safety glasses, protective gloves, and lab coat

HMIS Rating:	Health	Flammability	Reactivity	Personal Protection Equipment
	N/A	N/A	N/A	N/A
NFPA Rating:	Health	Flammability	Reactivity	Special Hazards
	N/A	N/A	N/A	N/A

Storage and Handling Precautions: Store in a tightly sealed container in a cool, dry place. Protect from moisture. Do not breathe dust. Wash thoroughly after handling

5. POTENTIAL HEALTH HAZARDS/ TOXICOLOGICAL INFORMATION

Toxicity: LD₅₀ (Oral-Rat)(mg/Kg): N/A
LD₅₀ (IV-Rat)(mg/Kg): N/A
LD₅₀ (Oral-Mouse)(mg/Kg): N/A

Carcinogenicity: NTP: No
IARC: No
Z List: No
OSHA Reg: No

Effects of Overexposure: Irritation, gastrointestinal upset

Target Organs: None identified

Medical Conditions Aggravated By Exposure: None identified

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

The toxicological properties of this product have not been thoroughly investigated

6. EMERGENCY AND FIRST AID

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

7. FIRE HAZARDS & FIRE FIGHTING MEASURES

Flash Point (Closed Cup): N/A

Flammable Limits: Upper – N/A % Lower – N/A %

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

PRODUCT NAME: Linsmaier & Skoog Basal Medium
PRODUCT NUMBER: L689

Page #: 2 of 4
Last Revised: 23 Dec 2009

Special Fire-Fighting Procedures: 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.

Unusual Fire & Explosion Hazards: May emit toxic fumes under fire conditions.

Toxic Gases Produced: Carbon monoxide, carbon dioxide, nitrogen oxides

8. REACTIVITY & CONDITIONS TO AVOID

Stability: Stable

Hazardous Polymerization: Will not occur

Conditions to Avoid: Moisture, excessive heat

Incompatibles: Strong oxidizing agents

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides

9. SPECIAL PRECAUTIONS/PROTECTIVE EQUIPMENT

Ventilation: Ventilation hood

Respiratory Protection: 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.

Eye/Skin Protection: Have eye-washing facilities readily available where eye contact can occur. Wear chemical safety goggles. Use appropriate chemical protective gloves when handling. Showering and changing into street clothes after work is recommended.

10. SPILLS & LEAKS

Spill or Discharge: Wear suitable protective clothing and a self-contained breathing apparatus if available. Carefully sweep up and remove. Place material in a dry container and cover. Remove from the area. Flush spill area with water.

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

EPA Hazardous Waste Number: N/A

11. TRANSPORTATION DATA

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 (I.M.O.):

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

12. REGULATORY INFORMATION

U.S. Federal Regulatory Information

TSCA: No

SARA TITLE III:

Section 302 (EHS) Ingredients: No

Section 313 Ingredients: No

Section 304 (EHS/CERCLA) Ingredients: No

SARA TITLE III NOTIFICATION INFORMATION

Acute Health Hazard: No

Chronic Health Hazard: No

Fire Hazard: No

Sudden Release of Pressure Hazard: No

International Regulatory Information

Risk Phrases: 8 – Contact with combustible material may cause fire
36/37/38 – Irritating to eyes, respiratory system, and skin

Safety Phrases: 17 – Keep away from combustible material
26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
36 – Wear suitable protective clothing

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