Material Safety Data Sheet

Issuing Date 12/6/2012 **Revision Number** 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name **NUTRIENT SOLUTION #10 (TRACE ELEMENTS)**

Product Code(s) 5350

Recommended Use Test kit reagent. Laboratory chemicals. Industrial (not for food or food contact use).

Company

LaMotte Company, Inc.
802 Washington Avenue
P.O. Box 329
Chestertown, MD 21620
USA

Emergency Telephone Number

24 Hour Emergency Number (CHEM-TEL):
USA, Canada, Puerto Rico 1-800-255-3924
Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION

Emergency Overview

May be harmful if swallowed
May irritate eyes and skin
Large oral doses may cause gastrointestinal irritation

Appearance Clear, colorless **Physical State** Liquid **Odor** None

Potential Health Effects

Principle Routes of Exposure Ingestion, Skin contact.

Acute Toxicity

Eyes May cause irritation. May cause redness, itching, and pain.

Skin May cause irritation.

Inhalation Not an expected route of exposure. May cause irritation.

Ingestion May be harmful if swallowed. May cause gastrointestinal discomfort if consumed in large amounts.

Chronic Effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Molybdate (MoO42-), dihydrogen, (T-4)-	7782-91-4	<0.01
Cupric sulfate	7758-98-7	<0.01
Zinc sulfate heptahydrate	7446-20-0	<0.1
Manganese Chloride Tetrahydrate	13446-34-9	0.2
Boric acid	10043-35-3	0.3
Water, distilled	7732-18-5	to 100%

4. FIRST AID MEASURES

General Advice Do not get in eyes, on skin, or on clothing. Show this safety data sheet to the doctor in attendance.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If irritation persists or develops, contact a physician.

Skin Contact Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Remove and wash contaminated clothing before re-use. If irritation develops or persists, consult physician.

Inhalation Move to fresh air.

Ingestion Drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.

Protection of First-aiders Use personal protective equipment. See Section 8 for more detail. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Flammable Properties Not a fire hazard. Not applicable.
Flash Point Not applicable

Suitable Extinguishing Media Water spray, dry chemical, carbon dioxide (CO_2), or foam.
Explosion Data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge No.

NFPA	**Health Hazard** 1	**Flammability** 0	**Stability** 0	**Physical and Chemical Hazards** N/A
HMIS	**Health Hazard** 1	**Flammability** 0	**Stability** 0	

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.

Methods for Containment Absorb/Cover spill with sodium bicarbonate or sodium carbonate to neutralize, then place in a chemical waste container for later disposal. Dispose according to federal, state, and local regulations.

Methods for Cleaning Up After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not ingest.

Storage Keep containers tightly closed in a dry, cool, and well-ventilated place. Keep away from heat and incompatibles.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Molybdate (MoO42-), dihydrogen, (T-4)- 7782-91-4	TWA: 0.5 mg/m³ TWA: 10 mg/m³ TWA: 3 mg/m³	TWA: 15 mg/m³ TWA: 5 mg/m³	IDLH: 1000 mg/m³
Cupric sulfate 7758-98-7	None Known	None Known	TWA: 1 mg/m³

Zinc sulfate heptahydrate 7446-20-0	None Known	None Known	None Known
Manganese Chloride Tetrahydrate 13446-34-9	TWA: 0.2 mg/m³	None Known	IDLH: 500 mg/m³ TWA: 1 mg/m³ STEL: 3 mg/m³
Boric acid 10043-35-3	= 6 mg/m³ STEL TWA: 2 mg/m³	None Known	None Known
Water, distilled 7732-18-5	None Known	None Known	None Known

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/Face Protection Safety glasses with side-shields.
Skin and Body Protection Wear protective gloves/clothing.
Respiratory Protection Maintain adequate ventilation.

Hygiene Measures Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Clear, colorless
Physical State Liquid
Flash Point Not applicable
Freezing Point No information available
Odor None
pH 4
Boiling Point/Range ca. 100°C/212°F

Solubility Soluble
Vapor Pressure No data available
Evaporation Rate No data available

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions of use and storage.

Incompatible Products Strong oxidizing agents. Strong reducing agents. Alkalis.

Conditions to Avoid Excessive heat. Incompatible products.

Hazardous Decomposition Products Carbon oxides (COx). Boron oxides. Manganese oxides. Zinc Oxides.

Hazardous Polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	None Known	None Known
Cupric sulfate	300 mg/kg (Rat)	1000 mg/kg (Rabbit)	None Known
Zinc sulfate heptahydrate	2150 mg/kg (Rat)	None Known	None Known
Manganese Chloride Tetrahydrate	1484 mg/kg (Rat)	None Known	None Known
Boric acid	2660 mg/kg (Rat)	2000 mg/kg (Rabbit)	None Known
Water, distilled	None Known	None Known	None Known

Chronic Toxicity

Chemical Name	ACGIH	IARC	NTP	OSHA
Molybdate (MoO42-), dihydrogen, (T-4)-	A3	None Known	None Known	None Known
Cupric sulfate	None Known	None Known	None Known	None Known
Zinc sulfate heptahydrate	None Known	None Known	None Known	None Known
Manganese Chloride Tetrahydrate	None Known	None Known	None Known	None Known
Boric acid	None Known	None Known	None Known	None Known
Water, distilled	None Known	None Known	None Known	None Known

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen

Endocrine Disruptor Information .

Chemical Name	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	None Known	None Known
Cupric sulfate	None Known	None Known	None Known
Zinc sulfate heptahydrate	None Known	None Known	None Known
Manganese Chloride Tetrahydrate	None Known	None Known	None Known
Boric acid	None Known	None Known	None Known
Water, distilled	None Known	None Known	None Known

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	None Known	None Known	None Known
Cupric sulfate	None Known	LC50= 0.1 mg/L Oncorhynchus mykiss 96 h	None Known	EC50 = 0.024 mg/L 48 h
Zinc sulfate heptahydrate	EC50 = 2.4 mg/L 96 h EC50 = 64.8 mg/L 72 h	LC50 24 - 26 mg/L Oncorhynchus mykiss 96 h LC50= 0.6 mg/L Pimephales promelas 96 h LC50= 17 mg/L Pimephales promelas 96 h	None Known	None Known
Manganese Chloride Tetrahydrate	None Known	None Known	None Known	None Known
Boric acid	None Known	None Known	None Known	EC50 658 - 875 mg/L 48 h EC50 = 115.0 mg/L 48 h
Water, distilled	None Known	None Known	None Known	None Known

Chemical Name	Log Pow
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known
Cupric sulfate	None Known
Zinc sulfate heptahydrate	None Known
Manganese Chloride Tetrahydrate	None Known
Boric acid	= -0.757 25 °C
Water, distilled	None Known

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose of in accordance with local regulations. Dispose according to federal, state, and local regulations.

Contaminated Packaging Dispose of in accordance with local regulations.

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Molybdate (MoO42-), dihydrogen, (T-4)- - 7782-91-4	None Known	None Known	None Known	None Known
Cupric sulfate - 7758-98-7	None Known	None Known	None Known	None Known
Zinc sulfate heptahydrate - 7446-20-0	None Known	None Known	None Known	None Known
Manganese Chloride Tetrahydrate - 13446-34-9	None Known	None Known	None Known	None Known
Boric acid - 10043-35-3	None Known	None Known	None Known	None Known
Water, distilled - 7732-18-5	None Known	None Known	None Known	None Known

14. TRANSPORT INFORMATION

DOT Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Molybdate (MoO42-), dihydrogen, (T-4)- 7782-91-4 (<0.01)	Present	X	X	1-388	X	KE-25464	X	X
Cupric sulfate 7758-98-7 (<0.01)	Present	X	X	1-300	X	KE-08956	X	X
Zinc sulfate heptahydrate 7446-20-0 (<0.1)	TSCA	X	EINECS/ELINCS	ENCS	X	KECL	X	X
Manganese Chloride Tetrahydrate 13446-34-9 (0.2)	TSCA	DSL	EINECS/ELINCS	1-235	X	KECL	X	X
Boric acid 10043-35-3 (0.3)	Present	X	X	1-63	X	KE-03499	X	X
Water, distilled 7732-18-5 (to 100%)	Present	X	X	ENCS	X	KE-35400	X	X

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Molybdate (MoO42-), dihydrogen, (T-4)-	7782-91-4	<0.01	None Known
Cupric sulfate	7758-98-7	<0.01	1.0
Zinc sulfate heptahydrate	7446-20-0	<0.1	1.0
Manganese Chloride Tetrahydrate	13446-34-9	0.2	1.0
Boric acid	10043-35-3	0.3	None Known
Water, distilled	7732-18-5	to 100%	None Known

SARA 311/312 Hazard Categories
Acute Health Hazard Yes

Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Molybdate (MoO42-), dihydrogen, (T-4)- 7782-91-4 (<0.01)	None Known	None Known	None Known	None Known
Cupric sulfate 7758-98-7 (<0.01)	10 lb	X	None Known	X
Zinc sulfate heptahydrate 7446-20-0 (<0.1)	None Known	X	None Known	None Known
Manganese Chloride Tetrahydrate 13446-34-9 (0.2)	None Known	None Known	None Known	None Known
Boric acid 10043-35-3 (0.3)	None Known	None Known	None Known	None Known
Water, distilled 7732-18-5 (to 100%)	None Known	None Known	None Known	None Known

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following HAPs:.

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Molybdate (MoO42-), dihydrogen, (T-4)-	7782-91-4	<0.01	None Known	None Known	None Known	None Known
Cupric sulfate	7758-98-7	<0.01	None Known	None Known	None Known	None Known
Zinc sulfate heptahydrate	7446-20-0	<0.1	None Known	None Known	None Known	None Known
Manganese Chloride Tetrahydrate	13446-34-9	0.2	Present (includes any unique chemical substance that contains Manganese as part of its infrastructure)	None Known	None Known	None Known
Boric acid	10043-35-3	0.3	None Known	None Known	None Known	None Known
Water, distilled	7732-18-5	to 100%	None Known	None Known	None Known	None Known

CERCLA

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	None Known
Cupric sulfate	10 lb	None Known
Zinc sulfate heptahydrate	1000 lb	None Known
Manganese Chloride Tetrahydrate	None Known	None Known
Boric acid	None Known	None Known
Water, distilled	None Known	None Known

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical Name	CAS-No	California Prop. 65
Molybdate (MoO42-), dihydrogen, (T-4)-	7782-91-4	None Known
Cupric sulfate	7758-98-7	None Known
Zinc sulfate heptahydrate	7446-20-0	None Known
Manganese Chloride Tetrahydrate	13446-34-9	None Known
Boric acid	10043-35-3	None Known

Water, distilled	7732-18-5	None Known

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	None Known	None Known	None Known	None Known
Cupric sulfate	X	X	X	None Known	None Known
Zinc sulfate heptahydrate	X	X	X	None Known	None Known
Manganese Chloride Tetrahydrate	None Known	X	X	X	None Known
Boric acid	None Known	X	None Known	None Known	None Known
Water, distilled	None Known	None Known	None Known	None Known	None Known

International Regulations

Mexico - Grade

Chemical Name	Carcinogen Status	Exposure Limits
Molybdate (MoO42-), dihydrogen, (T-4)-	None Known	Mexico: TWA= 10 mg/m^3 Mexico: TWA= 5 mg/m^3
Cupric sulfate	None Known	None Known
Zinc sulfate heptahydrate	None Known	None Known
Manganese Chloride Tetrahydrate	None Known	Mexico: TWA= 0.2 mg/m^3
Boric acid	None Known	None Known
Water, distilled	None Known	None Known

Canada

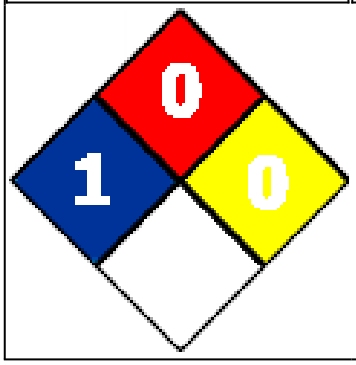
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

Component	WHMIS Hazard Class
Molybdate (MoO42-), dihydrogen, (T-4)- 7782-91-4 (<0.01)	1 % E
Cupric sulfate 7758-98-7 (<0.01)	1 %
Zinc sulfate heptahydrate 7446-20-0 (<0.1)	1 % Uncontrolled product according to WHMIS classification criteria
Manganese Chloride Tetrahydrate 13446-34-9 (0.2)	0.1 % D2B
Boric acid 10043-35-3 (0.3)	1 % D2A
Water, distilled 7732-18-5 (to 100%)	Uncontrolled product according to WHMIS classification criteria

Chemical Name	NPRI
Cupric sulfate	X

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol



Health Hazard	1
Fire Hazard	0
Reactivity	0

Prepared By	Regulatory Affairs Department
Issuing Date	12/6/2012
Revision Date	-
Revision Note	Initial Release.

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS