

# Safety Data Sheet

## Murashige & Skoog Salt Base

**CAROLINA**<sup>®</sup>  
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### Section 1 Product Description

**Product Name:** Murashige & Skoog Salt Base  
**Recommended Use:** Science education applications  
**Synonyms:** None Known  
**Distributor:** Carolina Biological Supply Company  
2700 York Road, Burlington, NC 27215  
1-800-227-1150  
**Chemical Information:** 800-227-1150 (8am-5pm (ET) M-F)  
**Chemtrec:** 800-424-9300 (Transportation Spill Response 24 hours)

### Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

**DANGER**



May intensify fire; oxidizer. May cause an allergic skin reaction. Causes serious eye irritation. May cause cancer. Toxic to aquatic life.

**GHS Classification:**

Skin Sensitisation Category 1, Carcinogenicity Category 1B, Serious Eye Damage/Eye Irritation Category 2A, Hazardous to the aquatic environment - Acute Category 2, Oxidizing Solid Category 3

**Other Safety Precautions:** IF exposed or concerned: Get medical advice/attention.

**Acute Toxicity Dermal Contains** 95 % of the mixture consists of ingredient(s) of unknown toxicity

### Section 3 Composition / Information on Ingredients

<u>Chemical Name</u>	<u>CAS #</u>	<u>%</u>
Ammonium Nitrate (CAS #6484-52-2 )	See Section 3	44
Potassium Nitrate (CAS # 7757-79-1 )		38
Calcium Chloride, Anhydrous (CAS #10043-52-4 )		7
Magnesium Sulfate, Anhydrous (CAS #7487-88-9 )		4
Potassium Phosphate, Monobasic (CAS #7778-77-0 )		1
Iron (III) Sodium EDTA (CAS #15708-41-5 )		0.4
Boric Acid (CAS #10043-35-3 )		< 1%
Manganese Sulfate, Monohydrate (CAS #10034-96-5 )		< 1%
Zinc Sulfate, 7-Hydrate (CAS #7446-20-0 )		<1%
Potassium Iodide (CAS #7681-11-0 )		< 1%
Sodium Molybdate, Dihydrate (CAS #10102-40-6 )		< 1%
Copper (II) Sulfate, 5-Hydrate (CAS #7758-99-8 )		< 1%
Cobalt (II) Chloride, 6-Hydrate (CAS # 13587-26-3 )		< 1%

### Section 4 First Aid Measures

**Emergency and First Aid Procedures**

**Inhalation:** In case of accident by inhalation: remove casualty to fresh air and keep at rest.  
**Eyes:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
**Skin Contact:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.  
**Ingestion:** If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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## Section 5

## Firefighting Procedures

<b>Extinguishing Media:</b>	Use dry chemical, CO2 or appropriate foam.
<b>Fire Fighting Methods and Protection:</b>	Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
<b>Fire and/or Explosion Hazards:</b>	Substance is an oxidizer. Contact with combustible materials, flammable materials, or powdered metals can cause fire or explosion. Can react violently with reducing agents.
<b>Hazardous Combustion Products:</b>	Carbon dioxide, Carbon monoxide, Potassium Oxide, Sodium Oxides, Sulfur Oxides, Zinc Oxides, Metal Oxides,

## Section 6

## Spill or Leak Procedures

<b>Steps to Take in Case Material Is Released or Spilled:</b>	Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill. No health affects expected from the clean-up of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this (M)SDS Ventilate the contaminated area. Isolate area. Keep unnecessary personnel away. Avoid the generation of dusts during clean-up.
<b>Environmental Precautions:</b>	Do not allow the spilled product to enter public drainage system or open waterways. Absorb the liquid and scrub the area with detergent and water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not flush spill to drain. Gather and store in a sealed container pending a waste disposal evaluation.

## Section 7

## Handling and Storage

<b>Handling:</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep/Store away from clothing/.../combustible materials. Take any precaution to avoid mixing with combustibles. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required. Avoid creating and inhaling dust. Avoid contact with skin and eyes. Keep away from combustible material.
<b>Storage:</b>	Store locked up. Store in a secure area suitable for oxidizing agents. Store away from flammable materials, organic solvents and combustible materials. Store separately and away from flammable and combustible materials. Keep locked up.
<b>Storage Code:</b>	Green - general chemical storage

## Section 8

## Protection Information

Chemical Name	ACGIH		OSHA PEL	
	(TWA)	(STEL)	(TWA)	(STEL)
Sodium Phosphate, Monobasic	N/A	N/A	N/A	N/A
Iron (III) Sodium EDTA	1 mg/m3 TWA (as Fe)	N/A	N/A	N/A
Manganese (II) Sulfate, Monohydrate	0.02 mg/m3 TWA (as Mn, listed under respirable fraction); 0.1 mg/m3 TWA (as Mn)	N/A	N/A	N/A
Cobalt (II) Chloride, 6-hydrate	0.02 mg/m3 TWA (as Co)	N/A	N/A	N/A
Copper (II) Sulfate, 5-Hydrate	1 mg/m3 TWA (dust and mist, as Cu)	N/A	N/A	N/A
Sodium Molybdate, Dihydrate	0.5 mg/m3 TWA (respirable fraction, as Mo)	N/A	5 mg/m3 TWA (as Mo)	N/A

### Control Parameters

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<b>Engineering Measures:</b>	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. Good general room ventilation should be sufficient to control airborne contaminants to safe levels.
<b>Personal Protective Equipment (PPE):</b>	Lab coat, apron, eye wash, safety shower.
<b>Respiratory Protection:</b>	No respiratory protection required under normal conditions of use.
<b>Eye Protection:</b>	Wear chemical splash goggles when handling this product. Have an eye wash station available.
<b>Skin Protection:</b>	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
<b>Gloves:</b>	Natural latex,, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride

## Section 9

## Physical Data

<b>Formula:</b> This product is a mixture.	<b>Vapor Pressure:</b> N/A
<b>Molecular Weight:</b> N/A	<b>Evaporation Rate (BuAc=1):</b> N/A
<b>Appearance:</b> White to off-white Powder	<b>Vapor Density (Air=1):</b> N/A
<b>Odor:</b> None	<b>Specific Gravity:</b> N/A
<b>Odor Threshold:</b> No data available	<b>Solubility in Water:</b> Soluble
<b>pH:</b> 3.5 - 4.5	<b>Log Pow (calculated):</b> No data available
<b>Melting Point:</b> 170 C	<b>Autoignition Temperature:</b> No data available
<b>Boiling Point:</b> 210 C	<b>Decomposition Temperature:</b> No data available
<b>Flash Point:</b> 210 C	<b>Viscosity:</b> No data available
<b>Flammable Limits in Air:</b> N/A	<b>Percent Volatile by Volume:</b> < 1%

## Section 10

## Reactivity Data

<b>Reactivity:</b>	No data available
<b>Chemical Stability:</b>	Stable under normal conditions.
<b>Conditions to Avoid:</b>	Exposure to air. Keep lid tightly closed when not in use. Exposure to moisture
<b>Incompatible Materials:</b>	Metals (powdered), Strong reducing agents, Strong acids, Organic Compounds, Bromine Trifluoride, Methyl Vinyl Ether, Strong oxidizing agents
<b>Hazardous Decomposition Products:</b>	Metal Oxides, , Zinc Oxides, Sulfur Oxides, Sodium Oxides, Potassium Oxide, Carbon dioxide, Carbon monoxide
<b>Hazardous Polymerization:</b>	Will not occur

## Section 11

## Toxicity Data

<b>Routes of Entry</b>	Inhalation and ingestion.
<b>Symptoms (Acute):</b>	Central Nervous System Disorders, Respiratory disorders
<b>Delayed Effects:</b>	No data available

<b>Acute Toxicity:</b>	<b>CAS Number</b>	<b>Oral LD50</b>	<b>Dermal LD50</b>	<b>Inhalation LC50</b>
<b>Chemical Name</b>				
Potassium nitrate		Oral LD50 Rat 3750 mg/kg Oral LD50 Rabbit 1901 mg/kg		
Ammonium Nitrate		Oral LD50 Rat 3540 mg/kg		
Calcium Chloride, Anhydrous		Oral LD50 Rat 2217 mg/kg Oral LD50 Rabbit 1384 mg/kg		
Potassium Phosphate, Monobasic		Oral LD50 Rat 3200 mg/kg	Dermal LD50 Rabbit > 4640 mg/kg	

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Cobalt (II) Chloride, 6-hydrate	Oral LD50 Guinea pig 31 mg/kg Oral LD50 Rat 766 mg/kg Oral LD50 Mouse 80 mg/kg
Copper (II) Sulfate, 5-Hydrate	Oral LD50 Rat = 300 mg/kg
Sodium Molybdate, Dihydrate	Oral LD50 Rat 25 mg/kg Oral LD50 Dog 25 mg/kg Oral LD50 Guinea pig 31 mg/kg Oral LD50 Rat 4 GM/KG
Zinc Sulfate, 7-Hydrate	

## Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
Potassium nitrate		Listed	Not listed	Not listed
Ammonium Nitrate		Listed	Not listed	Not listed
Potassium Phosphate, Monobasic		Not listed	Not listed	Not listed
Cobalt (II) Chloride, 6-hydrate		Listed	Not listed	Listed

## Chronic Effects:

<b>Mutagenicity:</b>	No evidence of a mutagenic effect.
<b>Teratogenicity:</b>	No evidence of a teratogenic effect (birth defect).
<b>Sensitization:</b>	Evidence of a sensitization effect.
<b>Reproductive:</b>	No evidence of negative reproductive effects.
<b>Target Organ Effects:</b>	
<b>Acute:</b>	See Section 2
<b>Chronic:</b>	To the best of our knowledge, the toxicological properties of this mixture have not been thoroughly evaluated.

## Section 12

## Ecological Data

<b>Overview:</b>	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
<b>Mobility:</b>	No data
<b>Persistence:</b>	Dissolved into water, Adsorbs to soil., Chemically Transformed
<b>Bioaccumulation:</b>	No data
<b>Degradability:</b>	No data
<b>Other Adverse Effects:</b>	No data

Chemical Name	CAS Number	Eco Toxicity
Potassium nitrate		Aquatic LC50 Mosquitofish ( <i>Gambusia affinis</i> ) = 22.5 MG/L Aquatic EC50 (48h) Daphnia = 226 MG/L
Calcium Chloride, Anhydrous		96 HR LC50 LEPOMIS MACROCHIRUS 10650 MG/L [STATIC] 48 HR LC50 DAPHNIA MAGNA 2400 MG/L
Magnesium Sulfate, Anhydrous		24 HR LC50 LEPOMIS MACROCHIRUS 19000 MG/L [STATIC] 24 HR EC50 DAPHNIA MAGNA 1700 MG/L 72 HR EC50 DESMODESMUS SUBSPICATUS 2700 MG/L
Potassium Phosphate, Monobasic		
Cobalt (II) Chloride, 6-hydrate		Not available Aquatic EC50 (48h) Daphnia = 1.1 - 1.6 MG/L Aquatic EC50 (48h)
Copper (II) Sulfate, 5-Hydrate		96 HR LC50 PIMEPHALES PROMELAS 0.6752 MG/L [STATIC]
Zinc Sulfate, 7-Hydrate		96 HR LC50 POECILIA RETICULATA 0.63 MG/L 96 HR LC50 PIMEPHALES PROMELAS 0.23 - 0.48 MG/L 96 HR LC50 PIMEPHALES PROMELAS 0.06 MG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 0.75 MG/L 72 HR EC50 PSEUDOKIRCHNERIELLA SUBCAPITATA 0.056 MG/L [STATIC] 96 HR EC50 CHLORELLA VULGARIS 2.4 MG/L 72 HR EC50 CHLORELLA VULGARIS 64.8 MG/L

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## Section 13

## Disposal Information

**Disposal Methods:** Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

**Waste Disposal Code(s):** Not Determined

## Section 14

## Transport Information

**Ground - DOT Proper Shipping Name:** UN 1477NITRATES, INORGANIC, N.O.S (Ammonium Nitrate, Potassium Nitrate)Division 5.1P.G. II

**Air - IATA Proper Shipping Name:** UN 1477NITRATES, INORGANIC, N.O.S (Ammonium Nitrate, Potassium Nitrate)Division 5.1P.G. II

## Section 15

## Regulatory Information

**TSCA Status:** All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Potassium Phosphate, Monobasic		No	No	No	No	No
Copper (II) Sulfate, 5-hydrate		No	No	No	No	No
Zinc Sulfate, 7-Hydrate		No	1000 lb RQ	1000 lb final RQ; 454 kg final RQ	No	No

## Section 16

## Additional Information

**Revised:** 09/09/2015

**Replaces:** 04/17/2015

**Printed:** 10-29-2015

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

### Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health