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# MATERIAL SAFETY DATA SHEET

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## 1. SUBSTANCE/MIXTURE AND COMPANY IDENTIFICATION

**Product Code**

MB-M4567

**Product Name**

Murashige & Skoog Modified Shoot Callus Medium

**Product Typology**

Dehydrated medium for botany.

Company : **Kisan Bio Co., Ltd.**

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## 2. HAZARDS IDENTIFICATION

**GHS Classification of the substance or mixture**

Any hazardous substance or mixture according to GHS (Globally Harmonized System) does not apply.

**GHS Label elements**

Pictogram	none
Signal word	none
Hazard statement(s)	none
Precautionary statement(s)	none
Supplemental Hazard Statement(s)	none

**Other hazards**

The product isn't classifiable as dangerous preparation.

## 3. COMPOSITION INFORMATION ON INGREDIENTS

**Mixtures**

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Name	CAS No.	EC No.	Classification	Content
Ammonium Nitrate	6484-52-2	-	Ox Sol 3; H272	4.7636%
Boric Acid	10043-35-3	-	-	0.0179%
Calcium Chloride, Anhydrous	10043-52-4	-	-	0.9591%
Cobalt Chloride 6H <sub>2</sub> O	7791-13-1	-	-	0.0001%
Cupric Sulfate 5H <sub>2</sub> O	7758-99-8	-	-	0.0001%
Ferric sodium EDTA 3H <sub>2</sub> O	15708-41-5	-	-	0.1216%
Magnesium sulfate, Anhydrous	14567-64-7	-	-	0.5217%
Manganese Sulfate H <sub>2</sub> O	10034-96-5	-	-	0.0488%
Molybdc Acid (Sodium Salt) 2H <sub>2</sub> O	10102-40-6	-	-	0.0007%
Potassium Iodide	7681-11-0	-	-	0.0024%
Potassium Nitrate	7757-79-1	-	Ox Sol 3; Reproductive Tox 2; H272, H361	5.4854%
Potassium Phosphate, Monobasic	7778-77-0	-	-	0.4908%
Sodium Phosphate, Monobasic	7558-80-7	-	-	0.4273%
Zinc Sulfate 7H <sub>2</sub> O	7446-20-0	-	-	0.0248%
Adenine Hemisulfate	321-30-2	-	-	0.231%
Kinetin	525-79-1	-	-	0.0029%
myo-Inositol	87-89-8	-	-	0.2887%
a-Naphthaleneacetic Acid (NAA)	86-87-3	-	-	0.0003%
Sucrose	57-50-1	-	-	86.6116%
Thiamine HCl	67-03-8	-	-	0.0012%

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## 4. FIRST AID MEASURES

### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

### In case of skin contact

Wash off with soap and plenty of water.

### In case of eye contact

Flush eyes with water as a precaution.

### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

### Most important symptoms and effects, both acute and delayed

No data available.

### Indication of any immediate medical attention and special treatment needed

No data available.

## 5. FIREFIGHTING MEASURES

### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### Special hazards arising from the substance or mixture

No data available.

### Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic moisture sensitive.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Management factor

Components	CAS No.	Value	Management factor	Basis
Boric Acid	10043-35-3	TWA	2 mg/m <sup>3</sup>	Works Exposure Standards- korea, ACGIH
		STEL	6 mg/m <sup>3</sup>	
Cupric Sulfate 5H <sub>2</sub> O	7758-99-8	TWA	1 mg/m <sup>3</sup>	ACGIH
Manganese Sulfate H <sub>2</sub> O	10034-96-5	TWA	1 mg/m <sup>3</sup>	Works Exposure Standards- korea
		STEL	3 mg/m <sup>3</sup>	
		TWA	0.2 mg/m <sup>3</sup>	ACGIH
Molybdic Acid (Sodium Salt) 2H <sub>2</sub> O	10102-40-6	TWA	0.5 mg/m <sup>3</sup>	Works Exposure Standards- korea, ACGIH
Sucrose	57-50-1	TWA	10 mg/m <sup>3</sup>	Works Exposure Standards- korea, ACGIH

### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical form** Powder.

**Color** White to Yellow.

**Odour** No data available.

**Ph** No data available.

**Melting point/freezing point** No data available.

**Initial boiling point and boiling range** No data available.

**Flash point**

No data available.

**Evaporation rate**

No data available.

**Flammability (solid, gas)**

No data available.

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**Vapour density**

No data available.

**Water solubility**

No data available.

## 10. STABILITY AND REACTIVITY

**Chemical stability**

No data available.

**Possibility of hazardous reactions**

No data available.

**Conditions to avoid**

No data available.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**

In case of fire hazardous decomposition products are generated. - Carbon dioxide, nitrogen oxides, sulfur oxides, hydrogen chloride gas, sodium oxide, iron Oxides.

Other decomposition products - no data available.

## 11. TOXICOLOGICAL INFORMATION

**Potential health effects**

Inhalation : May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion : May be harmful if swallowed.

Skin : May be harmful if absorbed through skin. May cause skin irritation.

Eyes : May cause eye irritation.

**Acute toxicity**

No data available.

**Skin corrosion/irritation**

No data available.

**Serious eye damage/eye irritation**

No data available.

**Respiratory or skin sensitisation**

No data available.

**Germ cell mutagenicity**

No data available.

**Carcinogenicity**

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.

**Reproductive toxicity**

No data available.

**Specific target organ toxicity - single exposure**

No data available.

**Specific target organ toxicity - repeated exposure**

No data available.

**Aspiration hazard**

No data available.

## 12. ECOLOGICAL INFORMATION

**Toxicity**

No data available.

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## **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 CONSIDERATIONS**

### **Methods of disposal**

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### **Contaminated packaging**

Dispose of as unused product.

## **14. TRANSPORT INFORMATION**

No data available.

## **15. REGULATORY INFORMATION**

### **Occupational Health and Safety Act**

Hazardous substances subject to authorization - Korea - Not relevant.

Manufacturing, including the prohibition of hazardous substances - Not relevant.

### **Toxic Chemicals Control Act**

Toxic (Toxic Chemicals Control Act Article 19) - Not relevant.

Observed material (Toxic Chemicals Control Act Article 31) - Not relevant.

Restricted Toxic (Toxic Chemicals Control Act Article 32 & 33) - Not relevant.

Prohibited substances (Toxic Chemicals Control Act Article 32 & 33) - Not relevant.

### **Safety Control of Dangerous Substances Act**

Not relevant.

### **Wastes Control Act**

Surveyed chemical emissions - Not relevant.

## **16. OTHER INFORMATION**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Kisan Bio Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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