
MATERIAL SAFETY DATA SHEET

1. SUBSTANCE/MIXTURE AND COMPANY IDENTIFICATION

Product Code

MB-K4439

Product Name

Kao & Michayluk 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; Skin Irrit 2; Eyes Irrit 2; STOT SE 2,3; STOT RE 2; H272, H315, H319, H335, H371, H373	15.4824%
Boric Acid	10043-35-3	-	-	0.0774%
Calcium Chloride, Anhydrous	10043-52-4	-	-	11.6892%
Cobalt Chloride 6H ₂ O	7791-13-1	-	-	0.0006%
Cupric Sulfate 5H ₂ O	7758-99-8	-	-	0.0006%
Ferric sodium EDTA 3H ₂ O	15708-41-5	-	-	1.0866%
Magnesium Sulfate, Anhydrous	14567-64-7	-	-	3.7816%
Manganese Sulfate H ₂ O	10034-96-5	-	-	0.258%
Molybdic Acid (Sodium Salt) 2H ₂ O	10102-40-6	-	-	0.0065%
Potassium Chloride	7447-40-7	-	-	7.7412%
Potassium Iodide	7681-11-0	-	-	0.0194%
Potassium Nitrate	7757-79-1	-	Ox Sol 3; Skin Irrit 2; Eyes Irrit 2; Reproductive Tox 2; STOT SE 2,3; STOT RE 2; H272, H315, H319, H335, H361, H371, H373	49.0274%
Potassium Phosphate, Monobasic	7778-77-0	-	Acute Tox 4; H302	4.3867%
Zinc Sulfate 7H ₂ O	7446-20-0	-	-	0.0516%
p-Aminobenzoic Acid	150-13-0	-	-	0.0004%
L-Ascorbic Acid	50-81-7	-	-	0.0516%
D-Biotin	58-85-5	-	-	0.0003%
D-Calcium Pantothenate	137-08-6	-	-	0.0258%
Choline Chloride	67-48-1	-	-	0.0258%
Citric Acid (Free Acid), Anhydrous	77-92-9	-	-	1.0322%
Cyancobalamin, Vitamin B ₁₂	68-19-9	-	-	0.0005%
Folic Acid	59-30-3	-	-	0.0103%
Fumaric Acid	110-17-8	-	-	1.0321%
L-Maleic Acid	110-16-7	-	Acute Tox 4; H302, H312	1.0321%
myo-Inositol	87-89-8	-	-	2.5804%
Nicotinamide	98-92-0	-	-	0.0258%

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Name	CAS No.	EC No.	Classification	Content
Pyridoxine HCl	58-56-0	-	-	0.0258%
Pyruvic Acid	4151-33-1	-	-	0.5161%
Riboflavin	83-88-5	-	-	0.0052%
Thiamine HCl	67-03-8	-	-	0.0258%
Vitamin A	68-26-8	-	-	0.0003%
Vitamin D ₃	67-90-7	-	-	0.0003%

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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 ³	Works Exposure Standards- korea, ACGIH
		STEL	6 mg/m ³	
Cupric Sulfate 5H ₂ O	7758-99-8	TWA	1 mg/m ³	ACGIH
Manganese Sulfate H ₂ O	10034-96-5	TWA	1 mg/m ³	Works Exposure Standards- korea
		STEL	3 mg/m ³	
		TWA	0.2 mg/m ³	ACGIH
Molybdcic Acid (Sodium Salt) 2H ₂ O	10102-40-6	TWA	0.5 mg/m ³	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.

Vapour density

No data available.

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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.

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12. ECOLOGICAL INFORMATION

Toxicity

No data available.

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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