



# SAFETY DATA SHEET

## 1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: Kao & Michayluk Vitamin Solution (100x)  
PRODUCT NUMBER: K421  
COMPANY INFO: *PhytoTechnology Laboratories*<sup>®</sup>  
PO Box 12205, Shawnee, KS 66282-2205  
Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442  
www.phytotechlab.com

EMERGENCY PHONE NUMBER: 1-800-535-5053 - US Only  
1-352-323-3500 - International

RECOMMENDED USE: For Research Use Only

RESTRICTIONS ON USE: Products sold by *PhytoTechnology Laboratories*<sup>®</sup> are intended for research and laboratory use only. Products are not to be used as human or animal therapeutics, cosmetics, agricultural or pesticidal products, food additives, or as household chemicals.

## 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Not a hazardous substance or mixture.

GHS Label elements, including hazard and precautionary statements:

Not a hazardous substance or mixture.

Hazards not otherwise classified (HNOC) or not covered by GHS - None

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percent	Hazardous
r-Aminobenzoic Acid	150-13-0	0.0002 %	No exposure limits established by OSHA or ACGIH
L-Ascorbic Acid	50-81-7	0.02 %	No exposure limits established by OSHA or ACGIH
D-Biotin	58-85-5	0.0001 %	No exposure limits established by OSHA or ACGIH
Calcium Pantothenate	137-08-6	0.01 %	No exposure limits established by OSHA or ACGIH
Choline Chloride	67-48-1	0.01 %	No exposure limits established by OSHA or ACGIH
Cyanocobalamin	68-19-9	0.0002 %	No exposure limits established by OSHA or ACGIH
Folic Acid	59-30-3	0.004 %	No exposure limits established by OSHA or ACGIH
<i>myo</i> -Inositol	87-89-8	0.99 %	No exposure limits established by OSHA or ACGIH
Nicotinic Acid	59-67-6	0.01 %	No exposure limits established by OSHA or ACGIH
Pyridoxine Hydrochloride	58-56-0	0.01 %	No exposure limits established by OSHA or ACGIH
Riboflavin	83-88-5	0.0002 %	No exposure limits established by OSHA or ACGIH
Thiamine Hydrochloride	67-03-8	0.01 %	No exposure limits established by OSHA or ACGIH
Retinol, trans Isomer	68-26-8	0.0001 %	No exposure limits established by OSHA or ACGIH
Water	7732-18-5	>98.5 %	No exposure limits established by OSHA or ACGIH

## 4. FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### 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. <b>Get medical attention.</b>
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. <b>Get medical attention if irritation persists.</b>
Skin Contact	Irritating. May cause reddening, itching or inflammation.	Wash area thoroughly with soap and water. Remove and wash contaminated clothing. <b>Get medical attention if irritation persists.</b>

Most Important Symptoms or Effects, Both Acute and Delayed:

See section 2 and/or section 11

Recommendation for Immediate Medical Care and Special Treatment Needed:

No data available

## 5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	Water spray, carbon dioxide, dry chemical powder, or appropriate foam. Use extinguishing media suitable for surrounding fire.
Special Protective Equipment and Precaution for Firefighters:	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.
Hazardous Combustion Products:	May emit toxic fumes under fire conditions.
Toxic Gases Produced:	Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas, Potassium oxides, Sodium oxides, Cobalt/cobalt oxides, Molybdenum oxides, Copper oxides

## 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protection recommended in Section 8. Avoid breathing vapors, mist or gas. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to safe areas.

Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Method of Containment and Cleanup:	Clean-up personnel should wear proper protective equipment and clothing. Contain spilled material and do not let product enter drains. Soak up with inert absorbent material and place in a suitable, closed container for disposal in accordance with all local, state/provincial, and national requirements. Ventilate the area if necessary.

## 7. HANDLING AND STORAGE

Precaution for Safe Handling:	Avoid contact with skin and eyes. Avoid incompatible substances. Keep away from combustible materials. Wash thoroughly after use.
Conditions for Safe Storage:	Keep in a tightly closed container and store in a cool, dry, and well-ventilated area. Protect from moisture. Product is hygroscopic.
Incompatibilities:	Strong oxidizing agent
Recommended Storage Temperature:	2 to 6 °C

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA's Permissible Exposure Limits (PELs):	No data available
Threshold Limit Values (TLVs):	No data available
Engineering Controls:	Handle in accordance to general industrial hygiene and safety practice.
Personal Protective Equipment (PPE):	

Eye/Face Protection:	Chemical safety glasses or goggles. Have eye-washing facilities readily available where eye contact can occur.
Skin Protection:	Protective gloves
Body Protection:	Lab coat
Respiratory Protection:	Respiratory protection is not required. Use N95 (US) or type P1 (EN 143) dust mask where dust level is nuisance. 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, yellowish liquid
pH:	No data available
Solubility:	Miscible with water
Melting Range:	No data available
Vapor Density:	No data available
Vapor Pressure:	No data available
Specific Gravity:	No data available
Odor:	May have slight odor
Odor Threshold:	No data available
Viscosity:	No data available
Relative Density:	No data available
Evaporation Rate:	No data available
Initial Boiling Point and Boiling Range:	No data available
Flammability (solid, gas):	No data available
Partition coefficient: n-octanol/water):	No data available
Auto-ignition Temperature:	No data available
Decomposition Temperature:	No data available
Flash Point (Closed Cup):	No data available
Flammable Limits:	Upper (%) – No data available      Lower (%) – No data available

## 10. STABILITY AND REACTIVITY

Reactivity:	No data available
Chemical Stability:	Stable under normal conditions of use
Possibility of Hazard Reactions:	Will not occur
Conditions to Avoid:	Moisture, excessive heat
Incompatibles Materials:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas, Potassium oxides, Sodium oxides, Cobalt/cobalt oxides, Molybdenum oxides, Copper oxides

## 11. TOXICOLOGICAL INFORMATION

Toxicity:	LD <sub>50</sub> (Oral-Rat)(mg/Kg):	No data available
	LD <sub>50</sub> (Oral-Mouse)(mg/Kg):	No data available
	LD <sub>50</sub> (Dermal-Rabbit)(mg/Kg):	No data available
Carcinogenicity:	NTP:	No

IARC: No

Z List: No

OSHA Reg: No

Reproductive Toxicity: No data available

Symptoms Associated with Overexposure: Irritation, sneezing, gastrointestinal upset

Specific Target Organ Toxicity: Single Exposure: No data available

Repeated Exposure: No data available

Target Organs: None identified

Medical Conditions Aggravated By Exposure: None identified

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

NIOSH/RTECS NO: Not listed

***The toxicological properties of this product have not been thoroughly investigated***

## **12. ECOLOGICAL INFORMATION**

Ecotoxicity: 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 CONSIDERATION**

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

EPA Hazardous Waste Number: No data available

## **14. TRANSPORT INFORMATION**

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:

IMDG: Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

Hazard Class: N/A

UN/NA: N/A

Labels: N/A

IATA: Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

Hazard Class: N/A

UN/NA: N/A

Labels: N/A

**15. REGULATORY INFORMATION**

TSCA: No

SARA TITLE III:

Section 302 (EHS) Ingredients: No

Section 313 Ingredients: No

Section 304 (EHS/CERCLA) Ingredients: No

Section 311/312 Hazard: No SARA Hazards

**16. OTHER INFORMATION**

HMIS Rating:	<b>Health Hazard</b>	<b>Chronic Health Hazard</b>	<b>Flammability</b>	<b>Physical Hazard</b>
	0		0	0
NFPA Rating:	<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Reactivity Hazard</b>	<b>Special Hazard</b>
	0	0	0	

**16. OTHER INFORMATION**

***Phyto*Technology Laboratories® provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. The above information is intended to be used only as a guide to the appropriate precautionary handling of this material by a properly trained person. *Phyto*Technology Laboratories® shall not be held liable for any damage resulting from handling or from contact with the above product. This product is intended for LABORATORY USE ONLY. Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticidal products, food additives or as household chemicals.**

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