



## Product Information Sheet

**K421**

### Kao & Michayluk Vitamin Solution (100x)

#### Properties

Form:	Liquid
Appearance:	Clear, Colorless to Slight Yellow Tint
Application:	Plant Tissue Culture
Solubility:	Miscible with Water
Typical Working Concentration:	10.0 mL/L of Medium
Storage Temp:	-20-0 °C
Other Notes:	Contains the vitamins as described by Kao and Michayluk (1975). Sterile Filtered.

#### Formula (mg/L)

p-Aminobenzoic Acid	2	myo-Inositol	10,000
L-Ascorbic Acid	200	Niacinamide	100
D-Biotin	1	Pyridoxine•HCl	100
D-Calcium Pantothenate	100	Retinol; Vitamin A	1
Choline Chloride	100	Riboflavin	20
Cyancobalamin; Vit B <sub>12</sub>	2	Thiamine•HCl	100
Folic Acid	40		

#### Application Notes

Plant species: *Vicia hajastana* (Kao & Michayluk, 1975); *Vicia faba* (Binding & Nehls, 1978); *Daucus carota* (Grzebelus et al, 2012).

#### References

- Binding, H. and Nehls, R. (1978) Regeneration of Isolated Protoplasts of *Vicia faba* L. *Z. Pflanzenphysiol.* 88, 327-332.
- Grzebelus E, M Szklarczyk & R Baranski (2012) An improved protocol for plant regeneration from leaf- and hypocotyl-derived protoplasts of carrot. *Plant Cell Tiss Organ Cult* 109:101-109.
- Kao, KN and MR Michayluk (1975) Nutritional requirements for growth of *Vicia hajastana* cells and protoplasts at a very low population density in liquid media. *Planta* 126:105-110.