



Silver Nano Dispersion 4K PVP-PEG

Technical Data Sheet:

Appearance: Light yellow-brown transparent liquid with low viscosity.

Ingredients: Concentrated Colloidal Silver Solution at 4000ppm of silver, manufactured from silver salt USP grade. Contains silver nanoparticles.

- Cost efficient
- Stable
- Good compatibility with a variety of ingredients
- Easy to dose and formulate
- No added colors or scents
- No added parabens, phenols, or quaternary ammonium compounds

Usage Guidelines: This is a concentrated solution. It should be added to the products in DILUTED form according to the anticipated concentration of silver in your final products and to the desired effect.

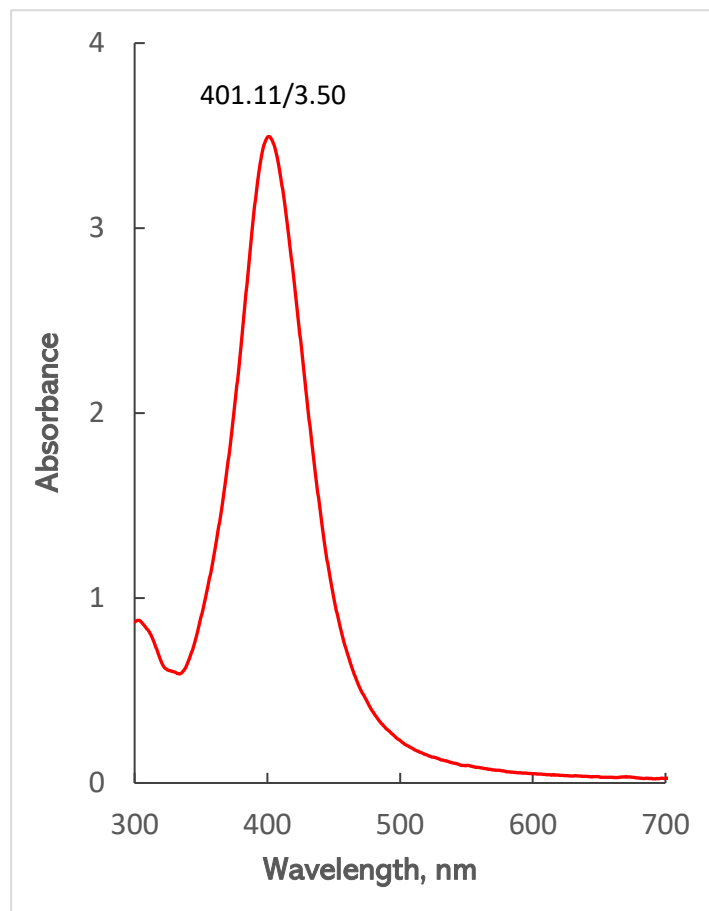
Because of different national regulations for preservatives and antimicrobials, used in cosmetics, home care and industry, the local registration and formulation rules should be applied for your final product.

Solubility: Highly soluble in water. Use DI water without chlorine ONLY.

Shelf life: 3 years, properly stored. Protect from the direct sunlight. Do not freeze.

Documentation: each lot is accompanied with COA, which includes measured concentrations of silver and confirmation of absence of hazardous heavy metals impurities.

Instrumentation used for characterization	
Diameter and size distribution:	Transmission Electron Microscope HITACHI H-7100
Mass concentration:	PerkinElmer NexION 2000P+ ICP-MS
Spectral properties:	Thermo Scientific Evolution 220 UV-Visible Spectrophotometer
Hydrodynamic Diameter and Zeta Potential:	Malvern Zetasizer NANO-ZS



Mass of silver:	4g/L=0.4wt%=4000ppm
pH of the solution:	5.0 - 6.0
Particle surface:	PVP40-PEG
Zeta-potential:	-1.36 mV
Peak wavelength:	401nm
OD:	3.5
Solvent:	Milli-Q water (18.1 MΩ-cm)

Zeta Potential Distribution

