



Silver Nano Dispersion 1K HEC

Technical Data Sheet:

Appearance Brown transparent viscous liquid.

Ingredients Concentrated Colloidal Silver Solution 1000ppm (0.1wt%) of silver, manufactured from silver salt USP grade stabilized by hydroxyethyl cellulose (HEC) Contains silver nanoparticles

- Ø Cost efficient
- Ø Stable
- Ø Good compatibility with a variety of ingredients
- Ø Easy to dose and formulate
- Ø No added colors or scents
- Ø 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.

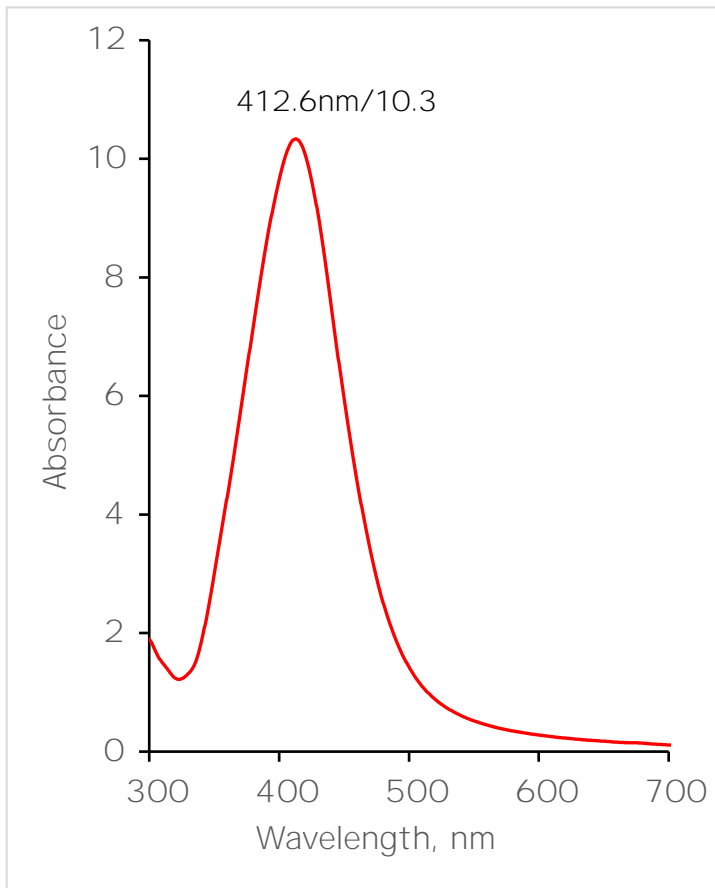
Because of different national regulations for preservatives and parabens, used in cosmetics, home care and industry, the local registration and formulation rules should be applied for your final product.

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

Shelf life 2 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 Thermo Scientific TALOS
Mass concentration:	PerkinElmer NexION 2000P+ ICPMS
Spectral properties:	ThermoScientific Evolution 220-Visible Spectrophotometer
Hydrodynamic Diameter and Zeta Potential	Malvern Zetasizer NANO-ZS



Mass of silver:	1g/L=0.1wt%=1000ppm
pH of the solution:	5 - 6
Particle surface:	Hydroxyethylcellulose
Peakwavelength:	412.6nm
OD:	10.3
Zeta-potential:	-0.52mV
Solvent:	Milli-Q water(18.1 M Ω -cm)

Zeta Potential Distribution

