

# K-SPERSE<sup>®</sup> A504

## Polymeric Pigment Dispersion



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K-SPERSE A504 is a 100% active polymeric dispersant designed for use in 100% solids formulations including coatings, inks, pigment concentrates and plastics.

**ADVANTAGES:**

- Lower pigment paste viscosity and high pigment loading
- Excellent color development and high gloss
- Better clarity of transparent pigments
- Improved jetness and viscosity stability of carbon black dispersions
- Little or no effect on the cure of amino resins or isocyanates
- Compatible with a wide variety of resin systems
- No heat is necessary to dissolve it in polyacrylate UV formulations
- No interference in free radical UV systems

<b>TYPICAL PROPERTIES:</b>	Appearance	Clear to slightly hazy, viscous liquid
	% nonvolatile	99
	Gardner Color	9
	Acid #	28
	ICI Viscosity, poise at 75 °C	22
	Specific gravity, 25°C	1.0

**SOLUBILITY:** Soluble in acrylates, ketones, esters, ethers, aromatic hydrocarbons and butanol. Partially soluble in aliphatic hydrocarbons, isopropanol, and ethanol. Insoluble in water.

**APPLICATIONS:** K-SPERSE A504 is recommended for organic and inorganic pigments in a wide variety of resins, including; acrylates, alkyds, acrylics, polyesters, polyurethanes and aldehydes. It is especially effective for pigments with high surface areas, such as high color carbon blacks, phthalocyanine blue, quinacridone and perylene reds.

**TYPICAL USAGE LEVELS:**

For high color carbon black:  
Weight % dispersant on pigment weight = pigment surface area(m<sup>2</sup>/g) x 0.14  
For other pigments:  
Weight % dispersant on pigment weight = pigment surface area(m<sup>2</sup>/g) x 0.33  
It is strongly recommended that a ladder study be run, since the optimum level of dispersant depends on the type of pigment, resin and solvent used in each specific formulation.

**INCORPORATION:** K-SPERSE A504 should be dissolved in the mill base prior to pigment addition.

**SHELF LIFE:** 12 months from the date of manufacture, when stored at ambient conditions in the original container.

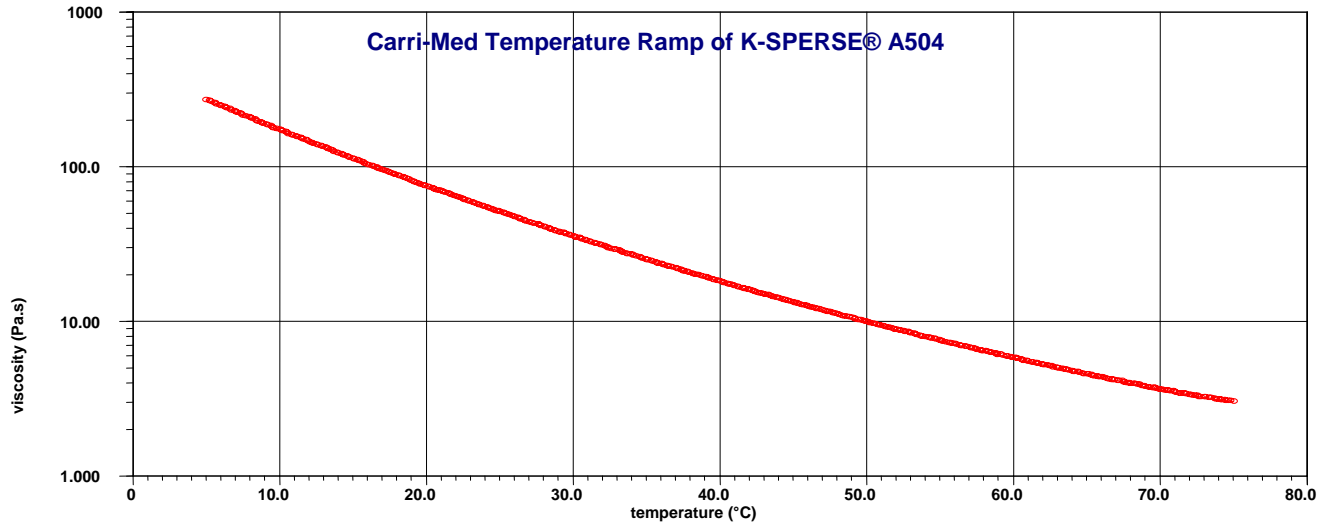
**HANDLING & STORAGE:** Safe handling of this product should include the use of safety glasses and gloves. Refer to MSDS for detailed information. This product may be heated up to 60 °C for easy handling. Avoid long periods of air exposure at elevated temperature as the product may darken.

**REGULATORY:** Please refer to Section 15 of the Material Safety Data Sheet for information.

## Application tips

### 1) Viscosity of K-SPERSE® A504 vs. temperature:

This product by itself has a Newtonian behavior. Figure 1 shows its viscosity curve vs. temperature.



### 2) Stability of K-SPERSE A504 in acrylates

A 20% solution of K-SPERSE A504 in propoxylated neopentyl glycol diacrylate (Sartomer SR 9003) was made via moderate agitation at room temperature. The solution remains clear after 4 weeks storage at 5 °C.

### 2) Dispersion example of K-SPERSE A504 for UV cure

Table 1: Carbon black dispersion with A504. 120 min dispersing on a shaker with ¼ inch steel beads.

Material	Parts by weight
K-SPERSE A504	9.0
SARTOMER® SR 9003	81.0
MONARCH® 1300	10.0
Total	100.0
Brookfield viscosity at 25 °C after particle size reduction to less than 5 µm on Hegman gauge	
At 10 rpm	252 cps
At 100 rpm	226 cps

SARTOMER SR 9003, a propoxylated neopentyl glycol diacrylate supplied by Sartomer Company, West Chester, PA.

MONARCH 1300, a high color carbon black pigment with surface area of 560 m<sup>2</sup>/g supplied by Cabot Corp., Billerica, MA.

