Product Data Sheet

K-SPERSE® A504
Polymeric Pigment Dispersion

SAMPLE REQUEST

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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

TYPICAL PROPERTIES:

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^2/g) x 0.14
For other pigments:
Weight % dispersant on pigment weight = pigment surface area(m^2/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.

File: A504_3 Issue Date: 11/1/2006 Supersedes: 9/21/04

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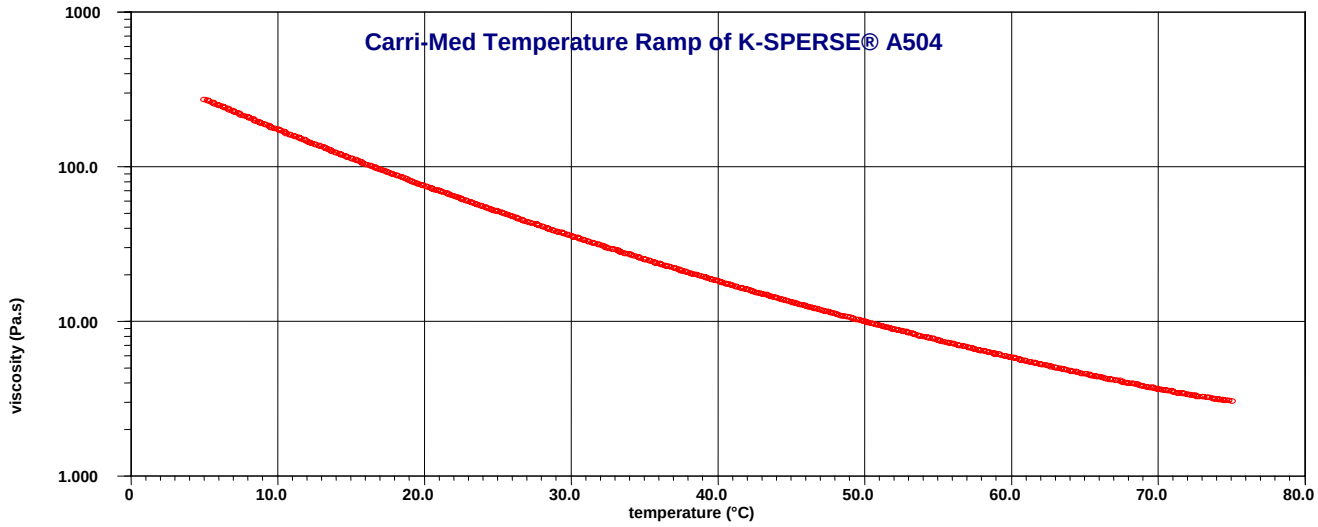
Application tips

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^2/g supplied by Cabot Corp., Billerica, MA.

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