



# Flexisperse™ 133N

Hydrophobically-modified pigment dispersant polymer

## Overview

- Aqueous, sodium neutralized, hydrophobically-modified pigment dispersant copolymer
- Cost effective alternatives to conventional dispersants
- Reduces energy requirements for high solids loading dispersions
- Excellent compatibility with binders, rheology modifiers and other formulation components
- Excellent dispersant for inorganic pigments
- Compatible with Hydrophobically modified Ethoxylated Urethane (HEUR) thickeners
- Improved water-resistance versus standard acrylic dispersing agents

## Applications

- Pigment dispersant in latex, flat through gloss paints
- Interior and exterior paints

## Technical Information

Flexisperse 133N is a new generation hydrophobically modified water-soluble pigment dispersant. The composition and molecular weight have been tailored to give optimum dispersing efficiency in paint formulations and optimum interaction with other hydrophobically modified polymers in the system such as associative rheology modifiers.

Flexisperse 133N has been optimized for pigment dispersion in water-based coatings, effectively dispersing high solids loadings, while interacting positively with common rheology modifiers such as HEUR thickeners for stable coatings formulations. Pendant hydrophobic anchoring groups add stabilizing interactions not found in conventional dispersants for improved compatibility with binders and surfactants for enhanced latex paint properties.

## Formulary

Evaluate at a use rate of 0.05-0.15% solids based on total pigment weight. Optimize for complete dispersion for adequate grind, maximizing gloss, coverage and stability, while limiting water sensitivity.

For guidance in finding the optimum use levels of Flexisperse hydrophobically modified pigment dispersing agents, give us a call.

## Typical Properties

PROPERTY	VALUE
Appearance	Opaque viscous liquid
Color	Tan
Odor	Mild
Ionic character	Anionic
Water solubility	Dispersible
Viscosity @25°C (Brookfield), MPa·s/cps	200 max.
Total solids, %	25.0±1.0
pH (as is)	6.0 to 7.0
Density@25°C	1.15±0.1 g/ml
Boiling Point	100°C
Flash point	None (aqueous)
Storage	Stable to freezing
Shelf life	12 months

## Packaging and Handling

Flexisperse 133N is available in:  
Bulk (44,000 lbs)  
275 gallon totes (Net Wt. 2250 lbs)  
55 gallon plastic drums (Net Wt. 450 lbs)

Refer to the Safety Data Sheet (SDS) for information on the safe use, handling, and disposal of this product

DOT Classification: Non-Regulated

Whether you're looking for a replacement product or an ingredient for a specific attribute, give us a call. We can provide assistance based upon your particular formulation requirements and composition; please feel free to contact us.

*Please refer to back page for important information*

## Flexisperse 133N Hydrophobically modified polymer pigment dispersant

Dispersants are “necessary evils” in coating formulations, indispensable for wet bulk and coating properties but may leave water soluble species in the dried coating. The ideal dispersant would have very efficient dispersing properties, leading to low usage levels, with interactions in the dried film that reduce water solubility. The ideal properties found in hydrophobically modified dispersants effectively reduce the viscosity of a high solids loading dispersions, while reducing the water sensitivity of the dried coating contributing to improvement in scrub resistance, water spotting, wet rub, etc.

### Dispersant mechanism, properties and use

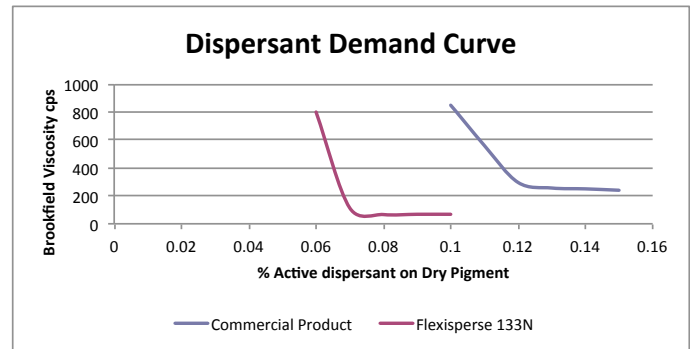
Ionic polymeric dispersing agents act by adsorbing to the surfaces of water dispersed inorganic mineral particles. The uniformly adsorbed polymer surface surrounding the inorganic particle establishes a uniform net negative charge to the particle surface resulting in like-charged particles that are electrostatically repelled from each other. The net negative charge reduces the interaction between particles, deflocculating solids, to lower the energy required in making the dispersion, improving the flow characteristics of the dispersion, and increasing the stability of the dispersion.

Hydrophobically modified ionic polymeric dispersing agents effectively interact with other flow modifying components in a formulated coating and with minerals such as TiO<sub>2</sub> and ZnO for improved water-resistance, gloss and film properties of the formulated coating.

The optimum amount of dispersing agent required depends on the concentration, and surface area of the mineral or combination of minerals to be dispersed. The smaller the particle size, the higher the actual surface area, hence the larger the area the dispersant has to cover. A dispersion curve can be plotted by simply measuring the reduction in viscosity as the dispersing agent is added incrementally to a mineral slurry, the minimum viscosity indicating the optimum dosage level referred to as the Dispersant Demand Curve.

### Dispersant Demand Curve

Flexisperse 133N was compared for dispersing efficiency against a commercial hydrophobic copolymer dispersant in a 70% solids slurry of TiPure R706, a paint grade TiO<sub>2</sub>. The results are shown in the following graph:



With this particular pigment the Flexisperse 133N achieves a lower slurry viscosity, indicative of better dispersion, with 40% less dispersant than the comparative commercial dispersant.

Tests for the interaction with associative rheology modifiers have shown similar increases in slurry viscosity to commercial hydrophobic dispersants and greater increases than seen with “hydrophilic” dispersants. The caveat to that statement is that since the Flexisperse 133N can be used at much lower levels, there are less hydrophobic groups to interact with other hydrophobic groups in the system. Flexisperse 133N has also shown good stability in Zinc Oxide containing formulations, better than other commercial hydrophobic dispersants, and comparable to the best (meth)acrylic acid systems.

This information relates only to the specific material referred to herein and not to its use in combination with any other material or in any process, unless explicitly stated herein. Such information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled; however, no warranty, guarantee or other representation is made as to its accuracy, reliability, or completeness, or regarding any liabilities arising from others' intellectual property rights. ID# 20180509