

ELEMENTIS

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Application Leaflet

## THIXATROL<sup>®</sup> P-220 X-MF

Polyamide paste based rheological additive for non-aqueous systems



### Key Benefits

- ❖ Provides excellent thixotropy
- ❖ Easy to incorporate
- ❖ Suitable for post viscosity correction

Enhanced Performance Through Applied Innovation

## Overview

THIXATROL® P-220 X-MF is a 20% active methanol-free, opaque white pre-dispersion on polyamide in xylene and ethanol. It is easy both to activate and to disperse. It provides thixotropy and sag resistance along with increased anti-settling properties in paint systems.

The structure of the active polyamide ingredient is already developed in the paste and it simply needs to be mixed homogeneously into the system using high shear dispersion.

## Key benefits

- Easy dispersible
- Excellent fineness
- Suitable for post-correction
- Provides excellent thixotropy
- Broad band solvent compatibility
- Seed resistant
- Improves pigment suspension and sag resistance

## Composition

Active content [%]	20
Flash point [°C]	12
Form	Paste
Specific gravity [g/cm <sup>3</sup> ]	0.87
Solvent	Xylene; alcohol

## Incorporation

THIXATROL® P-220 X-MF provides easy dispersibility and activation compared to powder based organic thixotropic additives that require controlled elevated temperature conditions, dwell time and high shear forces for activation. Due to the ease of dispersion, THIXATROL® P-220 X-MF is especially useful for clear and low PVC systems where temperature control and/or high shear forces are not applicable. It will also efficiently improve the viscosity build when post-correction is required.

THIXATROL P 220 X-MF is best incorporated using a Cowles blade at temperatures above 35°C to allow for homogeneous distribution of the pre-activated product. Shear forces between 6 – 10 m/s for less than 30 minutes have shown excellent results.

Too high shear forces or millbase incorporation might reduce the rheological efficiency as they can break the rheologically active structure of the polymer. Too high temperature during incorporation might cause a similar effect. It is therefore recommended to incorporate the product after the millbase, prior to the let-down stage, or as a post additive-

To optimize the incorporation process it is recommended to carry out an activation ladder study.

## Properties

In comparison to a market standard urea rheology modifier based on modified urea, THIXATROL® P-220 X-MF requires lower active loading to achieve equal mid shear viscosity in an OH acrylic industrial coating

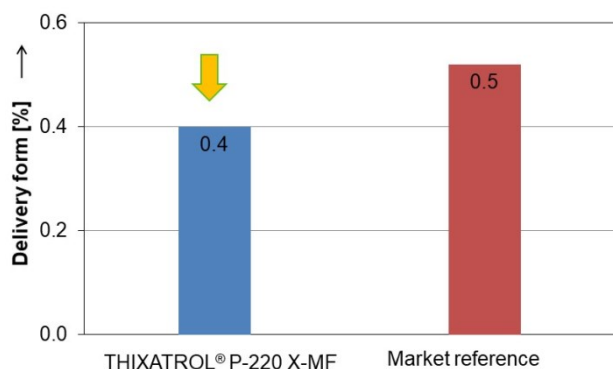


Figure 1: Efficiency to market reference grade

THIXATROL® P-220 X-MF will provide excellent thixotropic flow behaviour in order to provide excellent storage stability and sag control. This is furtherly resulting in a significant reduction of sedimentation and separation during storage.

In comparison to the urea based market reference product, the shear thinning flow character with THIXATROL® P-220 X-MF is significantly stronger.

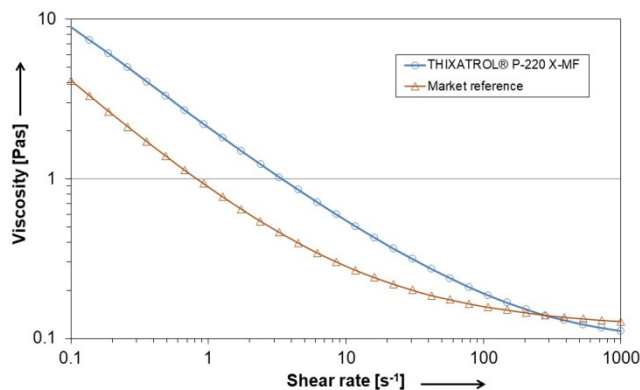
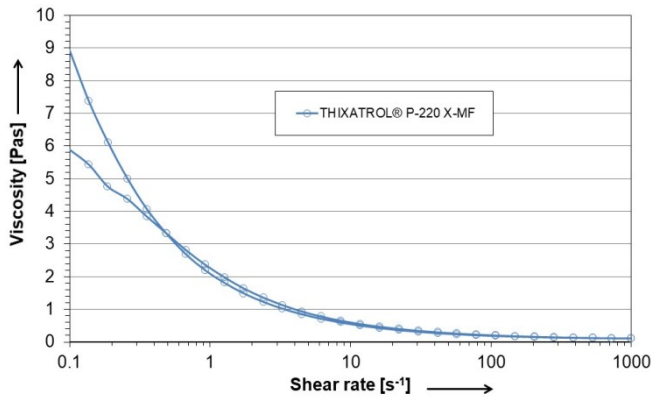


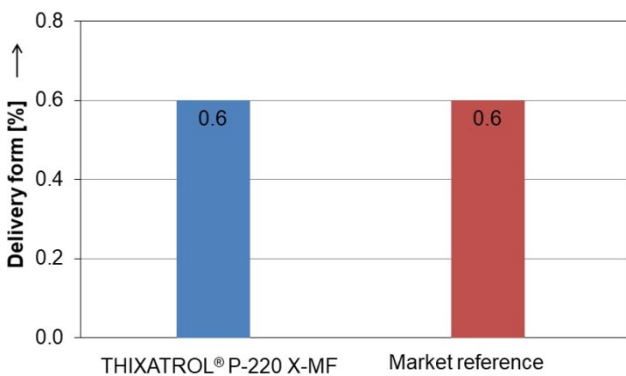
Figure 2: Flow character to market reference

As visualized in *Figure 3*, THIXATROL® P-220 X-MF provides a balanced recovery of the coatings structure after shear forces has been removed (post application). This will result in good levelling combined with excellent sag resistance after spray application.



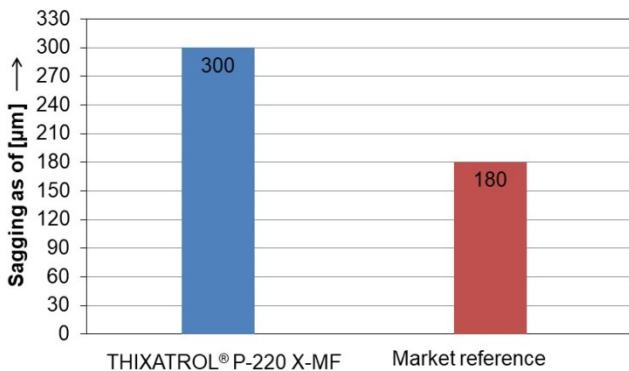
**Figure 3:** Flow character THIXATROL® P-220 X-MF

A comparison of the active loadings of THIXATROL® P-220 X-MF with castor wax, another class of organic thixotropes in an alkyd paint can be seen in *the following*. In comparison to a castor wax based organic thixotrope, THIXATROL® P-220 X-MF requires equal active loading in order to achieve equal Brookfield viscosity (*Figure 4*).



**Figure 4:** Efficiency versus castor wax

However, when comparing the provided sagging stability, another picture can be seen as visualized in *Figure 5*.



It can be seen that the use of THIXATROL® P-220 X-MF resulted in better sag control than the castor wax additive at equal active loadings.

## Conclusion

THIXATROL® P-220 X-MF is an easy to handle polyamide based paste for non-aqueous systems. It does neither require high shear nor elevated temperature to be activated and offers therefore the ability to be applied as a post-added rheology modifier.

In comparison to other organic thickener technologies based on liquid modified urea or castor wax the diamide based THIXATROL® P-220 X-MF provides significantly higher efficiency and better performance.

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