CLAYTONE-MPZ

Highly efficient rheology additive based on an organophilic phyllosilicate especially for medium-polarity to high-polarity systems to generate thixotropic flow behavior.

Product Data

Composition
Specially modified organophilic phyllosilicate

Typical Properties
The values indicated in this data sheet describe typical properties and do not constitute specification limits.

Sieve passing (200 mesh/74µm):	99.9 %
Bulk density:	220-330 kg/m³
Density (23 °C):	approx. 1.60 g/ml
Moisture content:	max. 3 %
Supplied as:	Powder, free-flowing

Food Contact Legal Status
For the current food contact legal status, please contact our product safety department or visit www.byk.com for further information.

Storage and Transportation
CLAYTONE-MPZ should be transported and stored dry in the unopened original container at temperatures between 0 °C and 30 °C.

Applications

Coatings Industry

Special Features and Benefits
Due to its special organic modification, CLAYTONE-MPZ is ideally suited to influencing the flow behavior of polar to medium-polarity coating systems. CLAYTONE-MPZ performs especially well in systems containing aromatic solvents, alcohols, glycols, ketones and esters.

CLAYTONE-MPZ is the best solution particularly in epoxy systems or zinc (shop) primers, where high sag resistance or anti-settling performance is required.

In comparison to other clays (e.g. Hectorite-based clays) CLAYTONE-MPZ outperforms these products in performance and ease of dispersion.

Using the additive produces thixotropic flow behavior, therefore resulting in a significant improvement to the anti-sagging properties while at the same time maintaining good leveling. This also optimizes storage stability, and prevents pigments and fillers from settling.

Recommended Use

Marine coatings	■
Protective coatings	■
Architectural coatings	■
Industrial coatings	■
Wood and furniture coatings	■
Automotive coatings	□

■ especially recommended □ recommended

Recommended Levels
0.3-3 % additive (as supplied) based on the total formulation)

The above recommended levels can be used for orientation. Optimal levels are determined through a series of laboratory tests.

Incorporation and Processing Instructions
The additive is incorporated while stirring, and preferably dispersed in the millbase at least with medium shear for a minimum of 10 minutes. Alternatively, it can also be incorporated using a 10 % pregel.
An addition of a polar activator is not always needed, but can increase the efficiency.

Possibe polar activators are:

Propylene carbonate/H_2O (95:5) 25-40 % based on CLAYTONE-MPZ
Ethanol/H_2O (95:5) 40-60 % based on CLAYTONE-MPZ
Methanol/H_2O (95:5) 25-40 % based on CLAYTONE-MPZ

Detergents, Cleaning and Care Products

Special Features and Benefits
CLAYTONE-MPZ is a rheology additive used to thicken solvent and oil systems. It is also used to stabilize water-in-oil emulsions. CLAYTONE-MPZ should be used as a gelling agent for medium-polarity to high polarity systems containing compounds such as aromatics, alcohols, glycols, and esters. It requires no activator for gelling, except in very polar systems.

Recommended Use

Cleaning agents for print rollers	■
Industrial cleaning agents (polar)	■

■ especially recommended □ recommended

Recommended Levels
0.4-2.5 % additive (as supplied) based on the total formulation, depending on the properties of the formulation to be achieved.

The above recommended levels can be used for orientation. Optimal levels are determined through a series of laboratory tests.

Incorporation and Processing Instructions
To achieve optimum effectiveness, CLAYTONE-MPZ requires both a high shear as well as the addition of a polar activator during incorporation.

The additive is effective in a multitude of organic liquid systems and requires no specific processing temperature. CLAYTONE-MPZ can be dispersed using a high-speed mixer.

The following polar activators are recommended:

Propylene carbonate/H_2O (95:5) 25-40 % based on CLAYTONE-MPZ
Ethanol/H_2O (95:5) 40-60 % based on CLAYTONE-MPZ
Methanol/H_2O (95:5) 25-40 % based on CLAYTONE-MPZ
CLAYTONE-MPZ can be incorporated either as a pregel or in situ.

Pregel can be produced as follows:

1. Place the organic solvent in the dispersion vessel
2. Slowly add the CLAYTONE-MPZ (8 % based on the pregel) while stirring
3. Stir for 15 minutes at high speed
4. Add the polar activator
5. Mix for 15 minutes at high speed

It can be incorporated directly during production as follows:

1. Place the organic solvent or oil in the dispersion vessel
2. Slowly add the CLAYTONE-MPZ while stirring
3. Stir for 15 minutes at high speed
4. Add the polar activator
5. Stir for 15 minutes at high speed
6. Continue to add the other recipe components

Surfactants and emulsifying agents may be added only after CLAYTONE-MPZ has been activated, otherwise the effect of the additive could be reduced or completely eliminated. When using emulsions, CLAYTONE-MPZ should be incorporated into the oil phase.

Thermosets

Special Features and Benefits
CLAYTONE-MPZ is a modified phyllosilicate rheology additive in powder form. In unsaturated polyester-based putty compounds, CLAYTONE-MPZ develops a strong thixotropy that provides a smooth application behavior. The additive particularly improves the resin separation on top of the putty surface during storage. Compared with commonly used thixotropes, a lower dosage can be applied.

Recommended Use

Putties	■

■ especially recommended □ recommended

Recommended Levels
0.2-2 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. Optimal levels are determined through a series of laboratory tests.

Incorporation and Processing Instructions
CLAYTONE-MPZ can be incorporated directly into the resin, and should be dispersed together with the fillers at medium to high shear.

Printing Inks

Special Features and Benefits
CLAYTONE-MPZ is a rheology additive in powder form that is especially recommended for influencing the flow behavior of polar to medium-polarity printing inks. Using the additive produces thixotropic flow behavior and therefore results in an improved dot definition.

Recommended Use
Particularly suitable for silk screen printing inks

Printing inks	■
Silk screen printing inks	■

■ especially recommended □ recommended

Recommended Levels
0.3-2 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. Optimal dosages are determined through a series of laboratory tests.

Incorporation and Processing Instructions
The additive is incorporated with stirring and dispersed at high shear forces for at least 10 minutes. Alternatively, it can also be incorporated using a 10 % paste. The effect of CLAYTONE-MPZ can be increased by adding a booster or small quantities of a polar solvent or water.

Powder Coatings

Special Features and Benefits

CLAYTONE-MPZ is a rheology additive used to increase the melt viscosity in powder coatings. Even at low dosages, the viscosity of the melt during extrusion and during the cross-linking reaction is increased. The resulting coating produces a fine surface texture. At higher dosages, this also reduces the gloss level. Areas of application are fine structure systems in which CLAYTONE-MPZ can be used to modify the surface texture and improve the edge covering by increasing the viscosity.

Recommended Use

The additive is recommended for powder coatings based on epoxy, polyester, polyurethane and acrylate resins as well as polyester/epoxy combinations.

Recommended Levels

0.5-2 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. Optimal levels are determined through a series of laboratory tests.

Incorporation and Processing Instructions

The additive should be mixed with the resin, hardener, pigments and other raw materials using a high-speed mixer and then extruded.

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Additive Guide

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