CLAYTONE-APA

Rheology additive in powder form based on an organophilic phyllosilicate for polar to medium-polar systems to generate thixotropic flow behavior.

Product data

Composition
Organophilic phyllosilicate

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

Loose bulk density: 176–256 kg/m^3
Delivery form: powder

Storage and transportation
CLAYTONE-APA should be transported and stored dry in the unopened original container at temperatures between -50 °C and +50 °C.

Applications

Coatings industry

Special features and benefits
Due to its special organic modification, CLAYTONE-APA is ideally suited for influencing the flow behavior of polar- to medium-polar coating systems. Using the additive produces thixotropic flow behavior, and therefore results in significant improvements 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

Architectural coatings	■
Industrial coatings	■
Protective coatings	■
Wood and furniture coatings	■
Printing inks	■
Powder coatings	■

■ 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. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
The additive is incorporated while stirring, and preferably dispersed in the millbase at high shear forces for at least 10 minutes. Alternatively, it can also be incorporated using a 10 % paste. The effect of CLAYTONE-APA can be increased by adding a booster or small quantities of a polar solvent or water.

Powder coatings

Special features and benefits
CLAYTONE-APA is a rheology additive that can be used to increase the melt viscosity in powder coatings. Even at low dosages, the melt viscosity during extrusion and during cross-linking reaction is increased. The resulting coating exhibits good leveling properties. At higher dosages, this produces a fine texture and reduces the gloss value. CLAYTONE-APA can be used to modify the surface structure in fine textured systems. The increased melt viscosity improves edge covering. This results in increased anti-corrosive properties.

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
0.5–4 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

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

Detergents, cleaning and care products

Special features and benefits
CLAYTONE-APA is a rheology additive used to thicken solvent and oil systems. It is also used to stabilize water-in-oil emulsions. CLAYTONE-APA is self-activating and easily dispersible for medium- to high-polar systems containing compounds including aromatics, alcohols, glycols, and esters. It can also be used in non-ionic surfactants (alcohol ethoxylates). CLAYTONE-APA requires no activator for gelling.

Recommended use

Industrial cleaning agents (polar)	■
Non-aqueous liquid detergents	■

■ especially recommended □ recommended

Recommended levels
0.5–3 % 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. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
To achieve the optimum effectiveness, CLAYTONE-APA requires a high shear force during incorporation. The additive is effective in a multitude of organic liquid systems and does not require a specific processing temperature. CLAYTONE-APA can be dispersed using a high-speed mixer. CLAYTONE-APA can be incorporated either as a pregel or in situ.

Pregels can be produced as follows:

1. Place the organic solvent in the dispersion vessel
2. Slowly add the CLAYTONE-APA (10 % based on the pregel) while stirring
3. Stir for 15 minutes at high speed

It can be incorporated directly during the production as follows:

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

When post-adding to the finished system, ensure that CLAYTONE-APA is well dispersed. Adding to a hot base can cause a very rapid external wetting of the powder. These wetted particles with a "dry" core are very difficult to disperse completely. CLAYTONE-APA should therefore be used in a system at a temperature below 50 °C. The use of a high-speed mixer or a low-shear dissolver is required for a later dispersion. Surfactants and emulsifiers may be added only after CLAYTONE-APA has been activated, otherwise the effect of the additive could be reduced or completely eliminated. When using emulsions, CLAYTONE-APA should be incorporated into the oil phase.

Thermosets

Special features and benefits
CLAYTONE-APA is a rheology additive in powder form based on modified phyllosilicates and is mainly used in putty compounds and laminating resins based on unsaturated polyester resins. It prevents the settling of fillers. In a combination of CLAYTONE-APA with booster additives, such as RHEOBYK-R 605, the dosage can be lower or the properties can be changed from a pseudoplastic to a thixotropic flow behavior compared with commonly used thixotropes. Thanks to the modification, CLAYTONE-APA exhibits a stable rheology profile even at higher temperatures.

Recommended levels

0.2–2 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions

CLAYTONE-APA can be incorporated directly into the resin. CLAYTONE-APA can be dissolved with a longer dispersion time but relatively low shear.

Fillers can increase the shear and improve the incorporation of the phyllosilicate. Alternatively, to achieve full effectiveness in UP resins (dosages 0.5–2 %), a pre-gel can be prepared in styrene. For this purpose, 4–6 % CLAYTONE-APA must be incorporated into styrene. At this concentration, the mixture can still be pumped, will flow and can be later dosed to the resin easyly. The use of air release additive in such resins is advisable to reduce the quantity of air bubbles.

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