

RHEOBYK-D 7460

Lithium-chloride-free, liquid rheology additive for the adjustment of a highly thixotropic flow behavior in medium-polar solvent-borne and solvent-free systems to improve the sag resistance and anti-settling properties.

Product data

Composition

Solution of modified urea

Typical properties

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

Density (20 °C): 1.17 g/ml

Active substance: 53.3 %

Solvents: Dimethyl sulfoxide

Flash point: 93 °C

Storage and transportation

Product is hygroscopic. Store dry. Minor turbidity of the material that occurs during storage has no influence on the rheological effectiveness. Crystallization possible at temperatures < 10 °C. Warm the product to > 20 °C before use. Take care after storage at low temperatures and when using the product without warming to room temperature beforehand. Risk of condensing moisture when opening the container. If handled and stored properly, the storage stability specified upon delivery applies in the unopened container.

Applications

Coatings industry

Special features and benefits

Through the formation of a three-dimensional network structure, thixotropic flow behavior is adjusted, and viscosity is therefore modified in the low shear range. This has a positive effect on properties such as anti-settling performance during storage and sag resistance during the application process, without having a negative effect on leveling. The additive is easy to handle and dose due to the liquid delivery form. Furthermore, it is not necessary to control the temperature to activate the rheological effect.

Recommended use

RHEOBYK-D 7460 is recommended for use in medium-polar coating systems.

Recommended levels

0.2–1.0 % additive (as supplied) based on the total formulation to prevent settling, depending on the polarity and the solids content of the formulation.

0.5–2.5 % additive (as supplied) based on the total formulation to prevent sagging, depending on the polarity and the solids content of the 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 added while stirring using medium shear forces to ensure homogenous distribution in the coating system within a short time. Adding to the letdown or as a post-additive for adjusting the viscosity is therefore preferable. Use in the millbase is generally possible, but should be checked on a case-by-case basis. It is not necessary to specifically control the temperature during manufacturing.

If the additive is suitable for use in the coating system, its rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated a few hours after incorporation.

Special note

If brought into contact with driers (siccatives), discoloration may occur due to the formation of metal complexes. In this case, the rheological effectiveness must be checked. An increased yellowing tendency is not expected at standard dosage. The impact should be tested in systems that are susceptible to yellowing and at higher dosages. When using the additive in reactive and catalyzed systems and in systems that contain cellulose nitrate, it is recommended to test the storage stability.

PVC plastisols**Special features and benefits**

The liquid additive is used to increase thixotropy in many PVC plastisol applications. It enables plastisols to be manufactured and processed more quickly and improves the anti-settling and anti-sagging properties. RHEOBYK-D 7460 minimizes floating in pigmented plastisols and improves the control of the coating profile in the gelling oven. Foam stability is increased in mechanically frothed PVC foams.

Recommended levels

0.1–0.5 % additive (as supplied) based on the PVC resin to prevent settling and floating.

0.3–1 % additive (as supplied) based on the PVC resin to prevent sagging. In exceptional cases doses of up to 3 % are possible.

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 post-added to the PVC plastisol, slowly while stirring. Depending on the formulation, the plastisol then requires a period of up to 4 hours for the initial thixotropic structure to form. In contrast, re-establishment of the structure after shearing occurs instantly.

Lubricants and mold release

Special features and benefits

After being incorporated into the system, the additive generates a three-dimensional network structure. The resulting thixotropic flow behavior is ideal for preventing fillers (e.g. graphite, MoS₂) from settling, without having a negative effect on handling. The additive is liquid and therefore easy to handle. It is not necessary to specifically adjust the pH value or control the temperature during incorporation.

Recommended use

RHEOBYK-D 7460 is preferably used as an anti-settling additive for manufacturing filler concentrates (e.g. graphite, MoS₂). The additive's excellent shear thinning effect causes a significant drop in viscosity under shear stress, which is advantageous in the subsequent application.

Recommended levels

0.3–2 % additive (as supplied) based on the total formulation to prevent settling.

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

Incorporation and processing instructions

Addition under controlled stirring ensures optimum distribution and the best possible effectiveness and reproducibility in applications. It is not necessary to specifically control the temperature or adjust the pH value. The additive is also suitable for subsequently adjusting the viscosity by incorporating it as a post-additive.

Thermosets

Special features and benefits

RHEOBYK-D 7460 develops a three-dimensional network structure in various thermoset resin systems. The network buildup is dependent upon time, whereby the degree of effectiveness differs depending on the resin system and concentration. With the formation of the network, the additive increases the viscosity in the low shear range and

- prevents fillers and pigments from settling (anti-settling)
- stabilizes emulsions of different polarities (anti-separation)
- prevents sagging on vertical surfaces (anti-sagging)

At higher shear rates, application properties and effects such as air release, flow behavior, and leveling are consistently retained at a similar level.

The additive is ideal for filled reactive casting resin systems based on e.g. epoxy, polyurethane, and acrylic resins. The composition of the system and the dosage of the additive are especially important for use in polyester resins (see special note). In unfilled systems, the viscosity can also be increased in the low shear range through a higher concentration of the additive.

Recommended levels

0.2–1 % additive (as supplied) based on the total formulation to prevent settling.

0.4–2 % additive (as supplied) based on the total formulation to prevent sagging and stabilize emulsions.

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 added while stirring and distributed homogenously. It is not necessary to specifically control the temperature. The additive is also suitable for subsequently adjusting the viscosity by incorporating it as a post-additive.

Special note

Using it with metal accelerators may cause discoloration or delayed curing.

Adhesives and sealants

Special features and benefits

The additive is used to increase viscosity in the low shear range. RHEOBYK-D 7460 builds up a three-dimensional network structure after stirring into the adhesive and sealant formulation and prevents settling and syneresis effects in filled systems. The additive forms a thixotropic flow behavior, which increases the viscosity at a low shear rate, but does not affect the application properties at a high shear rate. When used in higher dosages, the additive enables an improvement of the anti-sagging properties. The additive is liquid and therefore easy to dose. It is not necessary to control the temperature to activate the rheological effect.

Recommended use

RHEOBYK-D 7460 is suitable for use in medium-polar binder systems, e.g. epoxy, polyurethane, SMP, and acrylic resin systems.

Recommended levels

0.2–1.5 % additive (as supplied) based on the total formulation to prevent settling, depending on the polarity and the solids content of the formulation.

0.5–2.5 % additive (as supplied) based on the total formulation to prevent sagging, depending on the polarity and the solids content of the 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 added while stirring and distributed homogenously. It is not necessary to specifically control the temperature. The additive is also suitable for subsequently adjusting the viscosity by incorporating it as a post-additive. Rheological effectiveness builds up, dependent upon time and polarity, and can generally be evaluated 2 to 4 hours after incorporation.



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