

ANTIGEL[®]

Multifunctional additive

Properties

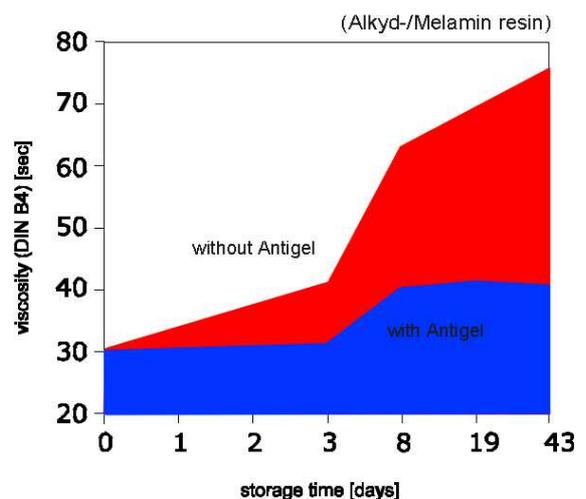
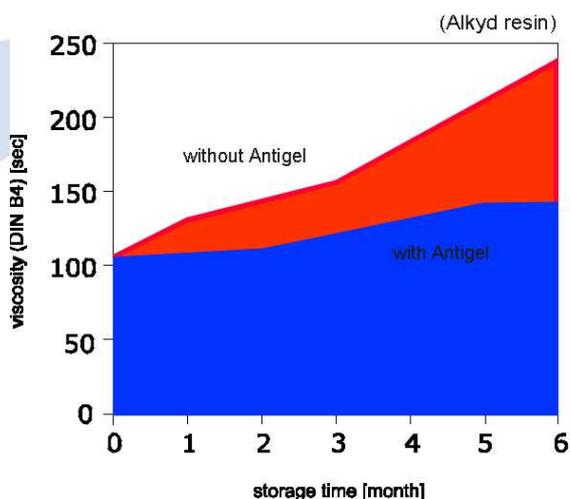
- Avoids viscosity increase by air oxidation
- Avoids skinning
- Regenerates thickened batches
- Avoidance of floating and flooding
- Improvement of gloss and flow
- Reduction of dispersion time
- Avoidance of sedimentation

Mode of action of ANTIGEL[®]

Aerial oxygen – as a diradical – reacts with the binder and thus creates highly reactive radicals. These radicals would – without **ANTIGEL[®]** – react further with binder molecules, leading to an increase of chains length, i.e. molecular weight increases and hence viscosity increases. Also, skin on the surface of coatings is formed by undesirable aerial oxidation. Oxygen from the air is diffused in the paint surface and so creates the skin on the paint surface, whereas oxygen diluted in the paint essentially increases viscosity. As there is relatively more oxygen in the air, the formation of the skin is much faster than the viscosity increase of the whole system. **ANTIGEL[®]** interferes in these mechanisms and prevents effectively.

Viscosity stabilisation

ANTIGEL[®] has been developed to stabilise the viscosity of air and oven drying coatings for a long period. Increase of viscosity, especially thickening effects, are caused by post-wetting and polymerisation of binder molecules by aerial oxygen. In this context the period of storage is of major importance.



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Besides the viscosity controlling properties **ANTIGEL**[®] has further so-called synergistic effects.

Regeneration of thickened batches

Another property of **ANTIGEL**[®] is the regeneration of thickened batches. Still this is one of the most important problems, which coating producers have to solve, wherefore today this property of **ANTIGEL**[®] is requested in the field of e.g. dipping coatings.

Dispersion

ANTIGEL[®] is a highly effective dispersing additive suitable for inorganic but also for organic pigments such as phthalocyanines. It prevents floating and flooding (Bénard cells) effects by controlled flocculation. By the same mechanism an uncontrolled re-agglomeration of the dispersed pigments is prevented. Due to better wetting, **ANTIGEL**[®] provides effective reduction of dispersion time respectively decrease of particle size. It ensures a stable and evenly distribution of the pigments. Additionally, antissettling is improved because **ANTIGEL**[®] prevents adding of binder molecules on pigments.

Gloss improvement

ANTIGEL[®] contains a compound that increases the flow properties of binders in order to reduce the drying speed and to keep the viscosity of fast drying systems stable in the drum. However, when applied the drying time is not impaired. This leads to improved flow of the system and thus to even hardening of the coating film. Hence, gloss degree, tinting strength and water resistance of coating systems are strongly improved.

Typical applications fields and suitable resin systems

ANTIGEL[®] can be used in solvent borne coating systems, especially in such based on alkyd, alkyd/melamine, NC, polyester and acrylate. **ANTIGEL**[®] is especially suitable in water-based alkyd resins and acrylates.

Solvent borne systems

- Alkyds
- Alkyd/melamine
- Alkydpolyesters
- Polyesters
- Acrylates
- Thermoplastic acrylates
- Reactive acrylates
- Nitrocellulose combinations
- Polyurethanes
- Epoxides
- Acid curing systems

Water-based systems

- Alkyds
- Alkyd/acrylic
- Alkyd/melamine
- Alkydpolyesters
- Polyesters
- Acrylates
- Thermoplastic acrylates
- Reactive acrylates
- Polyurethanes
- Epoxides

Typical application fields

- General industrial coatings
- Architectural paints
- Automotive refinishing paints
- Can coatings
- Coil coatings
- Corrosion inhibitive paints
- Decorative paints
- Wood coatings
- Marine paints
- Printing inks
- Adhesives

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Dosage

The dosage is 0.5 - 1.5 %, calculated on total system. However, for the regeneration of thickened batches a larger amount of **ANTIGEL**[®] is necessary. Depending on condition of the system the dosage is up to 6 %.

However, when used as a dispersing additive the dosage is 1.0 - 2.5%.

Summary

ANTIGEL[®] has continuously gained in significance since it has been launched on the market, mainly because of the combination of the described properties in only one additive. The properties of **ANTIGEL**[®] have not been altered when formulation adjustment to modern coating systems and requirements had to be done. Therefore, the properties of **ANTIGEL**[®] - a well-proven and also a modern additive - remained up to now unchanged.

The interplay of the described synergistic properties results from the unique formulation of **ANTIGEL**[®]. The special combination of its active substances is the reason for the multifunctional properties. Therefore, in many cases the addition of other dispersing additives, levelling additives etc can be reduced or partly replaced by adding **ANTIGEL**[®].

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