Application Leaflet

NUOSPERSE® FA 115

Compatibilizer for universal colorants in base paints

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Key Benefits

- Strong compatibilizer for aqueous and universal colorant systems
- For various color shades
- Effective stabilisation of base paint

Overview

The compatibility of universal colorants with base paints is improved by the addition of the coupling agent NUOSPERSE® FA 115 into the base paint.

Introduction

Universal color systems are suitable to be used in both solvent-thinned and waterborne coatings. In such cases, usually more than 1000 different color shades can be made with only one color system. To ensure a good color acceptance it is necessary to make base paint and colorant compatible to each other. Surfactants such as NUOSPERSE® FA 115 have shown its ability to improve the compatibility of color systems and waterborne coatings, as well as in solvent-thinned coatings. This additive class are also known as bridging agents or coupling agents for this application.

Features

NUOSPERSE® FA 115 is a liquid anionic surfactant, which strongly adsorbs onto the surface of various pigments. NUOSPERSE® FA 115 has shown its compatible with surfactants used in universal color systems, including nonionic polyethylene-glycol ethers and anionic suphates and carboxylates.

NUOSPERSE® FA 115 is used in the base paint and is preferably added to the millbase processing.

However, it is also possible to add NUOSPERSE® FA 115 during the let-down stage or as a trouble shooting additive.

Definitions

Universal colorants
Colorants are pigment preparation designed to be easily dispersible in paints and other systems, providing excellent and reproducible tinting result. These colorants also need to provide a wide range of compatibility with a variety of systems. A good tinting results, visible as good color acceptance and stability, is strongly dependent of the compatibility of the pigment preparation and the proposed system. Root cause for a poor tinting results can be e.g. pigment flocculation or floating. There are a few tests to check this color acceptance, e.g., brush-out or rub-up, etc. which are being described in the following.

FIGURE 1

After 2 min. After 10 min.

FIGURE 2

After 2 min. After 10 min.

Test method and results

The following described color acceptance test displays the excellent correlation with practical findings. The test is carried out as follows:

1. Add 1g gram of the relevant colorant into 100 g of the base paint.
2. Mix in Skandex/red devil for 2 min.
3. Take out a sample and perform a rub-out test with draw down.
4. Mix in Skandex/red devil for further 8 minutes.
5. Perform another rub-out test.
6. Make a rub-out of both draw-downs.

Optimum color acceptance has been achieved in case of no rub-out differences between both samples are to be noticed. Most critically testing can typically be done using colorants based on organic yellow pigments.

Result discussion

In the **FIGURE 1**, it can be seen that a good colour acceptance has been achieved after 2 minutes of mixing. After further 8 minutes of mixing the tinting result became significantly poorer if no color acceptance improver has been formulated.

The same test has been repeated after the addition of 0.2% NUOSPERSE® FA 115 to the dispersion paint. After this test no difference in shade was noticed between the 2 min. and 10 min. sample (**FIGURE 2**).

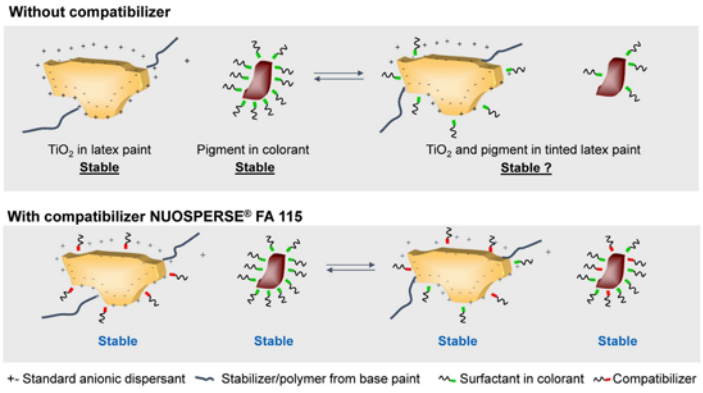
Conclusion

The pigment in the universal colorant is typically stabilised by suitable wetting and dispersing agents. During the mixing of the colorant into the base paint, a new equilibrium is obtained. The wetting agents might partly be desorbed from the pigment of the colorant and adsorbed on the pigment/extender in the base paint. This might result in an insufficiently stabilised color pigment. Please note that usually the surface area of the pigment extender from the base paint will be larger than the surface of the pigment from the colorant, since the colorant is only added in small quantities to the base paint. On the other hand the amount of dispersant for the stabilization is lower in the base paint than in the colorant. The addition of NUOSPERSE® FA 115 in the base paint improves the compatibility because:

1. The adsorption sites onto the pigment/extender in the base paint will be occupied with NUOSPERSE® FA 115.
2. NUOSPERSE® FA 115 compensates desorbed surfactant molecules onto the pigment of the colorant.
3. NUOSPERSE® FA 115 is extremely compatible with both the ingredients of the base paint as well as the colorant.

In **FIGURE 3** NUOSPERSE® FA 115 shows similar results in combination with other colorants in base paints.

FIGURE 3



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