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Tinuvin® 5333-DW (N)

Product Description

Tinuvin 5333-DW (N) is an aqueous dispersion of a blend of UV absorbers (UVA) and a hindered amine light stabilizer (HALS) for coatings, adhesives, sealants, and printing inks. It was also designed to meet high performance and durability requirements of exterior water-based industrial and architectural coatings including energy curable systems (UV, electron beam).

Key Features & Benefits

- Based on high performance UV absorbers and low basicity amino-ether HALS blend
- Excellent long-term performance (photo permanence)
- Zero VOC product in the final coating product
- Fully preserves dry film properties such as, inherent color, transparency, gloss
- Other coating film properties such as water impermeability and blocking resistance, hardness and scratch resistance are not affected
- Stir-in product, easily mixes with water-based systems without high shear mixing; disperses homogeneously without co-solvents or any other dispersion aids

Chemical Composition

Proprietary blend of UVA and a non-basic HALS

Properties

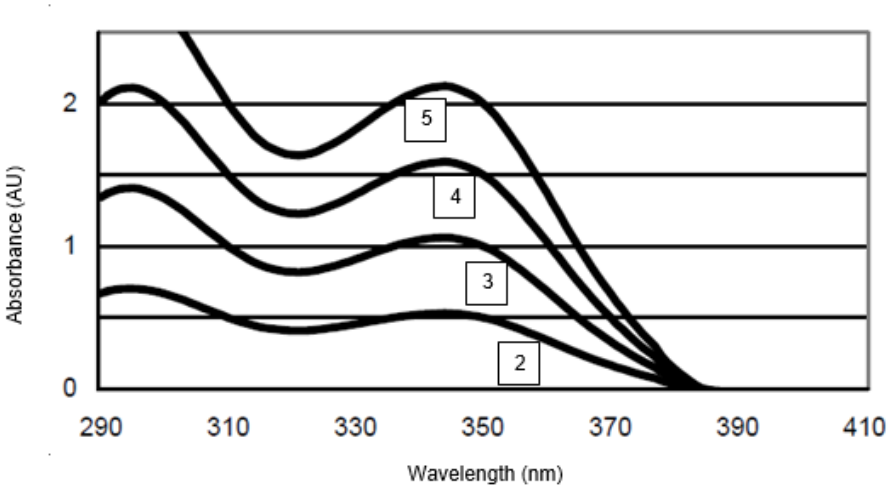
Typical Properties

Appearance		slightly yellow dispersion
pH		7 – 9
Solids	%	~ 52
Active UVA/HALS stabilizer mix	%	~ 40
Dynamic Viscosity at 20°C (at 150 s^{-1})	cps	10 – 50
Density at 20 °C (68°F)	g/cm^3	1.03 – 1.07

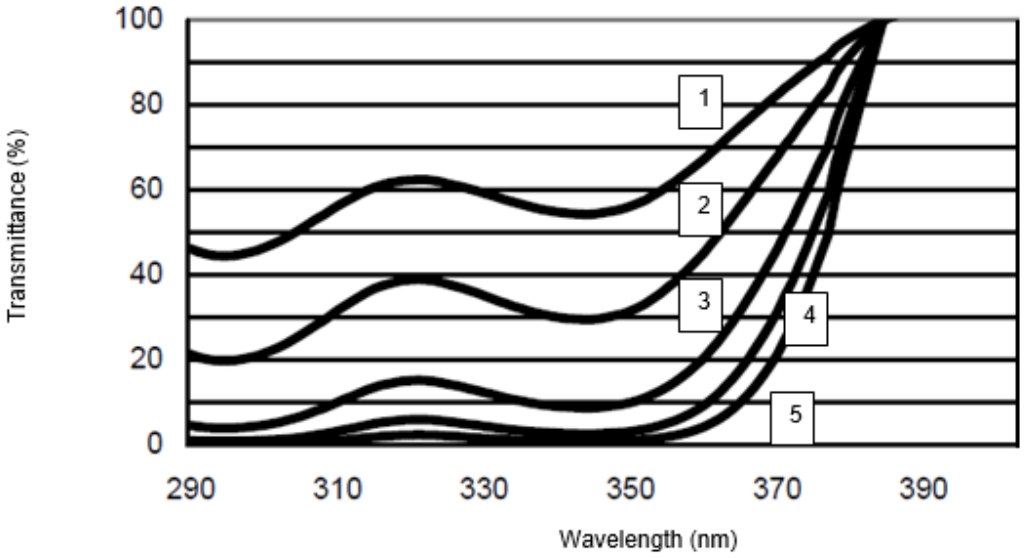
Tinuvin 5333-DW (N) is miscible with most water-based coating systems.

These typical values should not be interpreted as specifications.

UV Absorbance Spectrum
(in 80:20 toluene:THF; path = 1cm)



UV Transmittance Spectrum
(The theoretical concentraion in an applied 40 µm clear coat was calculated as a function of the concentration in toluene with the help of the Lambert-Beer law. 80:20 toluene:THF, light path length = 1 cm)



Line one: 25 mg/l (0.0025% Tinuvin 5333-DW (N) corresponds to 0.25% active in 40 µm film)
Line two: 50 mg/l (0.0050% Tinuvin 5333-DW (N) corresponds to 0.50% active in 40 µm film)
Line three: 100 mg/l (0.0100% Tinuvin 5333-DW (N) corresponds to 1.00% active in 40 µm film)
Line four: 150 mg/l (0.0150% Tinuvin 5333-DW (N) corresponds to 1.50% active in 40 µm film)
Line five: 200 mg/l (0.0200% Tinuvin 5333-DW (N) corresponds to 2.00% active in 40 µm film)

Applications

Tinuvin 5333-DW (N) is especially suitable for water-based acrylics and PUD dispersions with low to zero VOC requirement and/or where a traditional 2-(2-hydroxyphenyl)-Benzotriazole UV absorber needs to be upgraded.

Tinuvin 5333-DW (N) is recommended for applications such as:
- Wood coatings such as joinery coatings, stains, deck finishes,
- Vinyl coatings such as displays, PVC liners, tarpaulins, floor tiles
- Plastic coatings such as PC, PMMA, PET, sheets, films, packaging
- Coatings on glass such as architectural glazing, packaging materials
- Architectural coatings
- Overprint varnishes over metal, board, paper, laminates
- Adhesives and sealants

Binder systems

- Water-based 1K and 2K PUR such as acrylic/NCO, PES/NCO
- Water-based acrylics, acrylic/alkyd hybrids and PUD dispersions
- Water-based thermosetting such as acrylic/melamine, PES/melamine
- Water-based UV curable systems such as acrylic, PES

Recommended concentrations

The amount of Tinuvin 5333-DW (N) required for optimum performance should be determined in laboratory trials covering a concentration range.

The concentration of Tinuvin 5333-DW (N) depends on dry film thickness (DFT) and on desired protection.

Dry film thickness	By weight on binder solids
10 µm – 20 µm:	40.0 – 20.0%
20 µm – 40 µm:	20.0 – 10.0%
40 µm – 60 µm:	10.0 – 7.5%
60 µm – 80 µm:	7.5 – 5.0%
80 µm – 120 µm:	5.0 – 3.0%

On pale wood substrates (pine, fir, spruce, etc.) pretreatments based on Lignostab® 1198 are recommended for better wood color retention and improved overall durability of coatings.

Safety

General	The usual safety precautions when handling chemicals must be observed. These include the measure described in Federal, State and Local health and safety regulations, thorough ventilation of the workplace, good skin care, and wearing of protective goggles.
Safety Data Sheet	All safety information is provided in the Safety Data Sheet for Tinuvin 5333-DW (N).

Storage

Please refer to the “Handling and Storage of Polymer Dispersions” brochure.

Important

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