

Printing & Packaging Industrial Coatings

Technical Data Sheet

Tinuvin® 9945-DW (N)



Product Description

Tinuvin® 9945-DW (N) is a solvent-free, aqueous UV absorber dispersion for high performance industrial and decorative waterborne coating applications.

Key Features & Benefits

- Encapsulated hydroxyphenyl-benzotriazole UVA
- Ease of incorporation into water-based coatings
- Permits formulation of low/zero VOC coatings
- Can be blended with other encapsulated products to balance price/performance profile

Chemical Structure

Hydroxy-phenyl-benzotriazole derivative

Properties

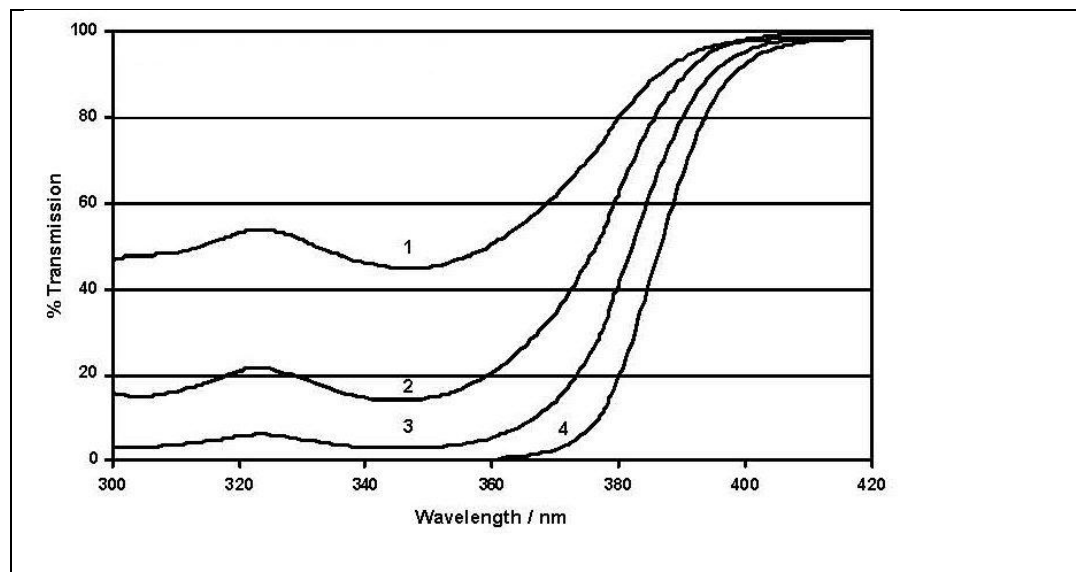
Typical Properties

Appearance	light yellow dispersion
UV absorber content	45 wt%
Solid content	ca 52 wt%
Particle size D_{INT}	< 250 nm
pH	6 – 9.5
Dynamic Viscosity at 20 °C	10 – 50 cps
Density at 20 °C	1.05 – 1.10 g/cm ³

These typical values should not be interpreted as specifications.

Transmission Spectrum

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



- Line one: 0.0025 % Tinuvin® 9945-DW (N) corresponds to 0.30 % active UVA in a 40 µm film
Line two: 0.005 % Tinuvin® 9945-DW (N) corresponds to 0.60 % active UVA in a 40 µm film
Line three: 0.010 % Tinuvin® 9945-DW (N) corresponds to 1.20 % active UVA in a 40 µm film
Line four: 0.020 % Tinuvin® 9945-DW (N) corresponds to 2.40 % active UVA in a 40 µm film

Applications

Tinuvin® 9945-DW (N) is a versatile light stabilizer that is easy to incorporate into aqueous paints as a simple stir-in product. Based on Tinuvin® 9945-DW (N), it provides good UV stabilization and is suited for high performance waterborne industrial and decorative coating applications.

Tinuvin® 9945-DW (N) protects the color and appearance of natural and stained, tinted, or printed wood, paper, board, and other lingo-cellulosic substrates as well as composites containing them (i.e. WPC based on wood flour or other vegetal fibers). Its protective effects can be enhanced when Tinuvin® 9945-DW (N) stabilized varnishes are applied on wood substrates that have been pretreated with Lignostab® 1198 lignin stabilizer containing solutions.

Tinuvin® 9945-DW (N) is recommended for applications such as:

- Wood stains and varnishes, wood care products, waxes
- Automotive and general industrial paints
- Plastic coatings (films, bottles, containers, liners, tarpaulins, ...)
- Coatings on PC and PMMA sheets, panels, glasses
- UV blocking coats on printed goods (paper, board, laminates, ...)
- Architectural coatings (roof tiles, walls, floor coatings, ...)
- Glass and ceramic coatings (architectural glazing, packaging, ...)
- Adhesives and bonding layers

Processing

It is not necessary to add co-solvents or to use specific high energy dispersion equipment to obtain homogeneous mixing. Sedimentation is not observed during long term storage of liquid paints. Tinuvin® 9945-DW (N) has minor influence on dry coating film properties such as gloss, transparency, water sensitivity, and blocking resistance. Its very high thermo- and photo-stability and high water leaching resistance confer coatings long-lasting UV protection.

Recommended concentrations

The amount of Tinuvin® 9945-DW (N) required for optimal performance depends on film thickness and pigmentation. It should be determined by a series of trials covering a concentration range.

2 – 10% Tinuvin® 9945-DW (N) (as supplied) in topcoats = 0.5 – 2.5% active UVA
(stabilizer weight percent concentration on coating binder solids)

outdoor applications

+ 2 – 10% Tinuvin® 123-DW (N) (as supplied) = 0.6 – 3% active HALS on binder solids

pale wood substrate pretreatment (improved color protection)

+ 0.8 – 2.0% Lignostab® 1198 in water or aqueous, water/co-solvent-based primer formulations (% on total formulation)

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures 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 Tinuvin® 9945-DW (N).

Important

While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, they are provided for guidance only. Because many factors may affect processing or application/use, BASF recommends that the reader make tests to determine the suitability of a product for a particular purpose prior to use. **NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESCRIPTIONS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS.** In no case shall the descriptions, information, data or designs provided be considered a part of BASF's terms and conditions of sale. Further, the descriptions, designs, data, and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability for the descriptions, designs, data or information given or results obtained all such being given and accepted at the reader's risk.

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