

Printing & Packaging Industrial Coatings

Technical Data Sheet

Tinuvin® 477-DW (N)



Product Description

Tinuvin® 477-DW (N) is an aqueous UV absorber dispersion developed for waterborne coatings.

Key Features & Benefits

- Encapsulated hydroxyphenyl-triazine with excellent absorbance in the UV-A region
- Enables formulating of low/zero VOC coatings
- Ease of incorporation into water based coatings
- Excellent photo-permanence

Chemical Composition

Hydroxy-phenyl-s-triazine chromophore

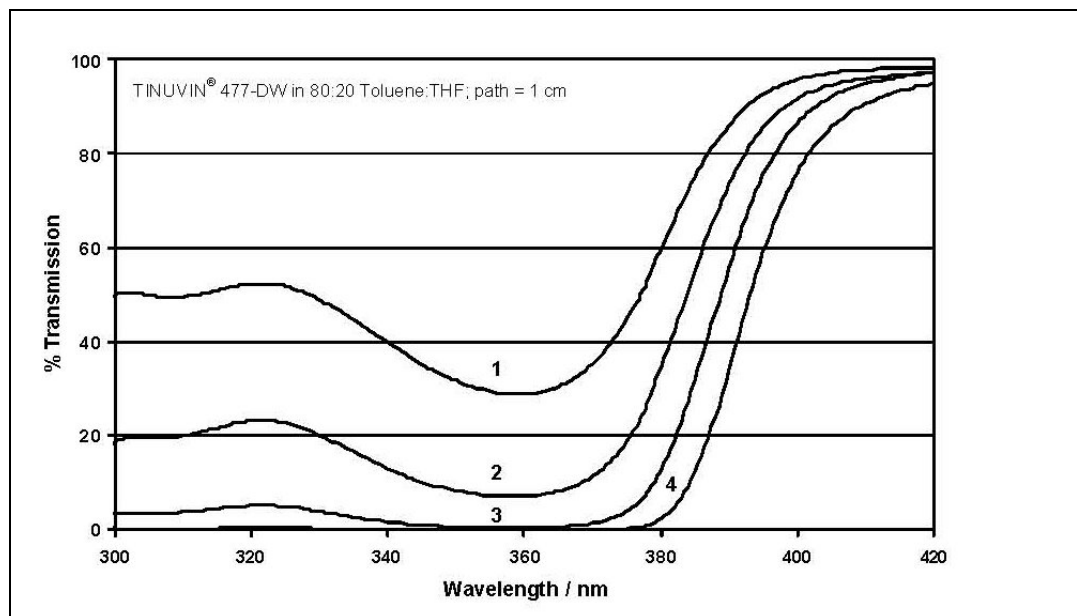
Properties

Typical Properties

Appearance	light yellow dispersion
UV absorber content	20 w/w % (Tinuvins® 477)
Solid content	40 w/w%
Particle size D _{INT}	< 200 nm
pH	6 – 9.5
Dynamic Viscosity at 25 °C	~ 50 cps
Density at 20 °C	1.05 g/cm ³

These typical values should not be interpreted as specifications.

Transmission Spectrum



- (1) 0.005 % Tinuvin® 477-DW (N) correspond to 0.25 % active UVA in a 40 µm film
- (2) 0.010 % Tinuvin® 477-DW (N) correspond to 0.50 % active UVA in a 40 µm film
- (3) 0.020 % Tinuvin® 477-DW (N) correspond to 1.00 % active UVA in a 40 µm film
- (4) 0.040 % Tinuvin® 477-DW (N) correspond to 2.00 % active UVA in a 40 µm film

Applications

Tinuvin® 477-DW (N) is an aqueous UV absorber dispersion developed for waterborne coatings. Based on a red shifted hydroxyphenyl-s-triazine chromophore, it is suited for coatings and substrates requiring strong UVA range wavelength protection. Its high heat stability and excellent photo-permanence provide superior UV stabilization and fulfill the requirements of high performance industrial, decorative, and wood coatings.

Tinuvin® 477-DW (N) is recommended for clear and lightly pigmented coatings in applications such as:

- Wood stains and varnishes, wood care products, waxes
- Coatings on plastics (films, bottles, containers)
- Coatings on PC and PMMA sheets, panels, glasses
- UV blocking varnishes on printed materials (paper, board, wood)
- Glass coatings (architectural glazing, packaging)
- Adhesives and bonding layers

Tinuvin® 477-DW (N) is particularly suited for the protection of UVA range sensitive substrates, prints, or contents. Its very high thermo- and photo-stability and high water leaching resistance confer an extremely durable protection to coatings and coated substrates.

Tinuvin® 477-DW (N) protects efficiently the color and appearance of natural and stained wood. It is also particularly suited for UV blocking varnishes on tinted or printed materials to prevent fading of the prints.

Processing

Tinuvin® 477-DW (N) is easy to incorporate into aqueous paints as a simple stir-in product. Homogeneous mixing is possible without co-solvents and without using high energy dispersion equipment. Sedimentation or separation does not occur during long term storage of liquid paints. Tinuvin® 477-DW (N) has a minor influence on dry coating film properties such as gloss, transparency, water sensitivity, and blocking resistance.

The color protection of natural, stained, tinted, or printed wood, paper, board, and other lingo-cellulosic substrates as well as composites containing them (WPC-based on wood and other vegetal fibers) can be improved when Tinuvin® 477-DW (N) stabilized varnishes are applied on substrates that have been pretreated with Lignostab® 1198 lignin stabilizer.

The amount of Tinuvin® 477-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.

Recommended concentrations 2.0 – 10.0% Tinuvin® 477-DW (N) (as supplied) in topcoats = 0.4 – 2% active UV absorber

For wood substrate pretreatments (for improved color protection):
0.5 – 2% Lignostab® 1198 in water or aqueous, water/co-solvent-based primer formulations (% on total formulation)

(concentrations are based on weight % of binder solids)

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® 477-DW (N).

Important

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