Printing & Packaging
Industrial Coatings

Technical Data Sheet

Tinuvin® 400-DW

We create chemistry

Product Description

Tinuvin® 400-DW is an aqueous dispersion of a 2-hydroxy-phenyl-s-triazine (HPT) UV absorber (UVA) developed for waterborne coatings.

Key Features & Benefits

- Encapsulated hydroxyphenyl-triazine UVA with high extinction in the UV-B region
- Low color, low migration
- Minimal interaction with metal catalysts and amine crosslinkers
- Ease of incorporation into water based coatings
- Enables formulating of low/zero VOC coatings
- Excellent photopermanence

Chemical Composition

2-hydroxy-phenyl-s-triazone derivative

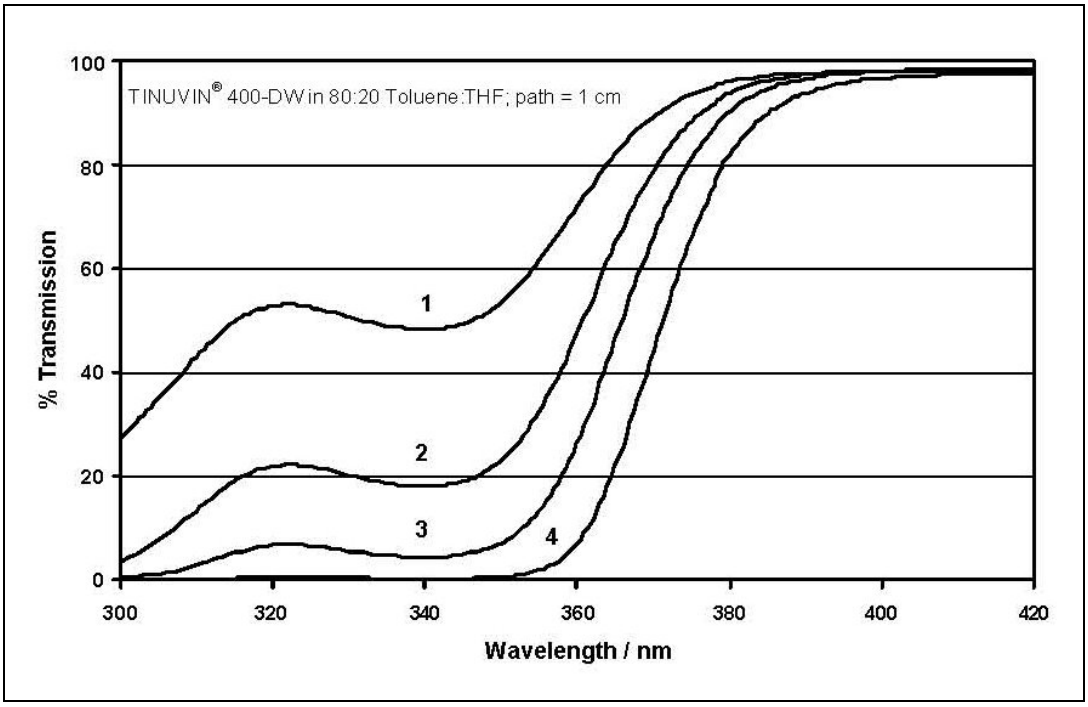
Properties

Typical Properties

Appearance	white dispersion
UV absorber type	2-hydroxyphenyl-s-triazine (HPT)
UV absorber content	20 wt %
Solid content	ca 40 wt %
Particle size D_{INT}	< 250 nm
Dynamic Viscosity at 25°C	10 – 50 cps
Density at 20°C	1.05 – 1.10 g/cm³

These typical values should not be interpreted as specifications.

Transmittance Spectrum



Explanation:

Top Line:	0.001% Tinuvin® 400-DW, corresponds to 0.25% in a 40 µ film
Second Line:	0.002% Tinuvin® 400-DW, corresponds to 0.50% in a 40 µ film
Third Line:	0.004% Tinuvin® 400-DW, corresponds to 1.0% in a 40 µ film
Bottom Line:	0.006% Tinuvin® 400-DW, corresponds to 1.5% in a 40 µ film

Application

Tinuvin® 400-DW is a versatile light stabilizer which can be used in a variety of waterborne coating systems. It has been designed to fulfill the high cost/performance and durability requirements of Interior and exterior industrial, decorative and automotive coatings. The high thermal stability and photo-permanence makes it suitable for coatings exposed to high bake temperatures and/or to extreme environmental conditions. It is not sensitive to metal ions and amines and does not form colored complexes in their presence. Tinuvin® 400-DW is ideal for applications where strong protection from UV-B radiation is required. In general, it fully keeps dry film optics such as self-color, gloss and transparency. Other coating film properties such as water impermeability and blocking resistance, hardness and scratch resistance are not reduced.

Its use is recommended for clear and lightly pigmented coatings in applications such as:

- Automotive OEM and refinish coatings
- General industrial finishes
- 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

Tinuvin® 400-DW is especially suited for waterborne acrylics and PUD dispersions or where traditional 2-(2-hydroxy-phenyl)-benzotriazole UVA fail due to metal and/or amine interactions with color formation.

For outdoor applications Tinuvin® 400-DW should be combined with hindered amine light stabilizers (HALS) such as Tinuvin® 123-DW or Tinuvin® 292 to enhance performance. Such synergistic combinations exhibit excellent protection against surface defects like loss of gloss, chalking and cracking, blistering and delaminating as well as preventing color change for both the coating and the substrate.

The amount of Tinuvin® 400-DW required for optimum performance depends on film thickness and pigmentation. It should be determined by a series of trials covering a concentration range.

Recommend Concentrations

2 – 10% Tinuvin 400-DW (as supplied) = 0.4 – 2% active UV absorber
(concentration based on weight percent binder solids)

For outdoor applications: + 2 – 10% Tinuvin 123-DW (as supplied) = 0.6 – 3% active HALS

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® 400-DW.

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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