

# Printing & Packaging Industrial Coatings

## Technical Data Sheet

### Tinuvin® 5151



#### Product Description

Tinuvin® 5151 is a liquid blend of a hydrophilic 2-(2-hydroxyphenyl)-benzotriazole UV absorber (UVA) and a basic hindered amine light stabilizer (HALS) designed to fulfill high cost/performance and durability requirements of exterior waterborne and solvent borne industrial and decorative coatings.

#### Key Features & Benefits

- Synergistic UVA/HALS blend designed for use in water- or solvent-based coatings
- Hydroxy functional UVA can be reacted with isocyanate and melamine crosslinkers to minimize migration
- Excellent spectral coverage in UV region

#### Chemical Composition

Blend of a hydrophilic 2-(2-hydroxyphenyl)-benzotriazole UVA and a basic HALS

#### Properties

##### Typical Properties

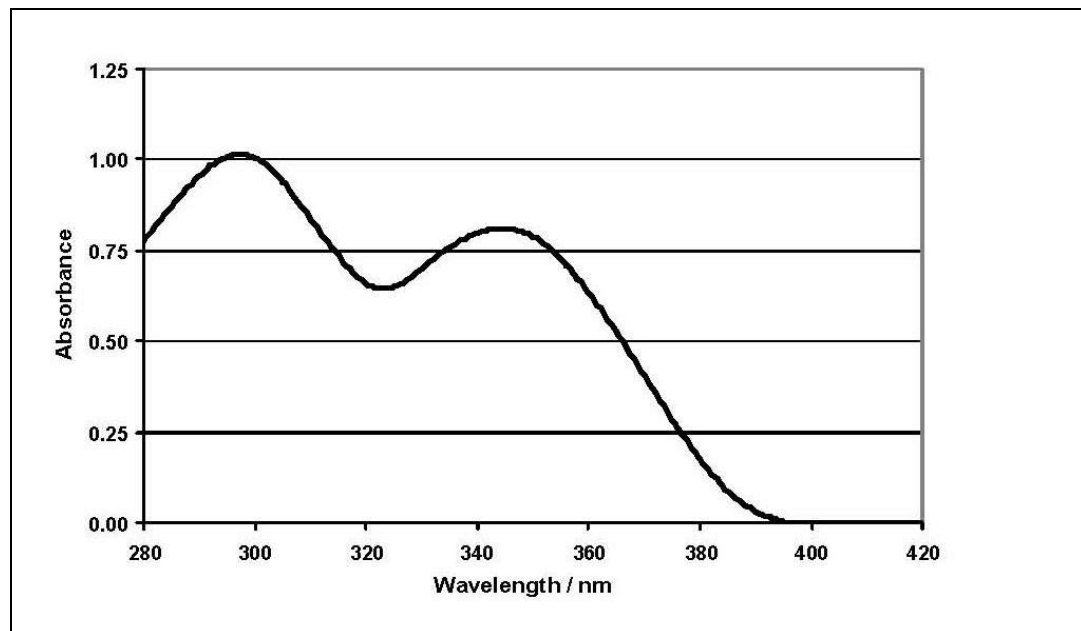
Appearance	viscous greenish to light amber liquid
Dynamic Viscosity at 25°C	7,000 cps
Density at 20°C	1.10 g/ml

##### Miscibility:

Tinuvin® 5151 is miscible to more than 50% with most commonly used paint solvents. Water solubility is less than 0.01%. Its use in waterborne coatings might require its pre-dilution in a water-miscible co-solvent such as butyldiglycol.

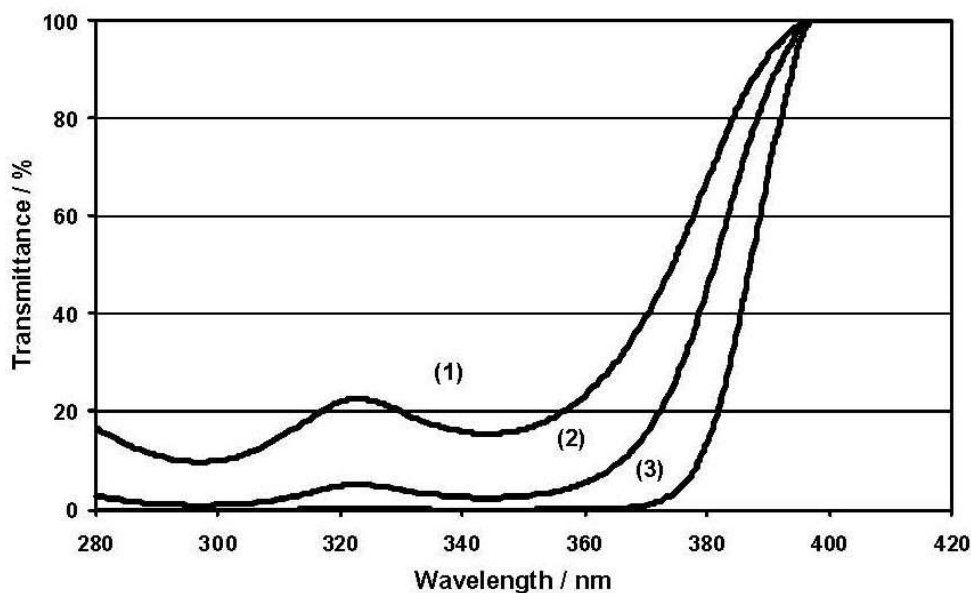
These typical values should not be interpreted as specifications.

#### UV Absorbance Spectrum (40 mg/l in chloroform, cell thickness = 1 cm)



### UV Transmission Spectrum

(The theoretical concentration of the UVA in an applied 40 µm clear coat was calculated as a function of the concentration in chloroform ( $d = 1.48 \text{ g/cm}^3$ ) with the help of the Lambert-Beer law)



Line one: 0.003% Tinuvin® 5151 corresponds to 0.68% active UVA in a 40 µm film  
Line two: 0.005% Tinuvin® 5151 corresponds to 1.35% active UVA in a 40 µm film  
Line three: 0.014 Tinuvin® 5151 corresponds to 3.38% active UVA in a 40 µm film

## Applications

Tinuvin® 5151 is a universal light stabilizer which can be used in a variety of solvent borne and waterborne industrial and decorative coating systems such as:

- Wood stains and varnishes, wood care products, waxes
- General industrial paints
- Heavy duty maintenance and marine coatings
- Architectural coatings (roof tiles, walls, floor coatings)
- Glass and ceramic coatings (architectural glazing, packaging)
- Refinish coatings
- Adhesives and bonding layers

Its use is especially recommended for clear and light pigmented systems like

- Thermoplastics (Acrylics, Vinylics)
- 1 and 2 K-PUR (Acrylic/NCO, PES/NCO)
- Waterborne systems (Acrylic, PUD, 2K-PUR)

The broad UV absorbance of the used UVA of Tinuvin® 5151 makes it suitable for a wide range of coatings for wood, plastics, and metal. The synergistic combination imparts superior coating protection against gloss reduction, cracking, blistering, delamination, and color change and provides full substrate protection.

### Recommended concentrations

The amount of Tinuvin® 5151 required for optimum performance should be determined in trials covering a concentration range.

The dry film thickness (DFT) directly affects the amount of UVA needed. The following amounts are recommended to achieve proper stabilization for given DFT (light stabilizers % is indicated on total formulation):

10 µm – 20 µm:	8.0 % – 4.0 %
20 µm – 40 µm:	4.0 % – 2.0 %
40 µm – 80 µm:	2.0 % – 1.0 %

## 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® 5151.

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