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Tinuvin® 405

Product Description

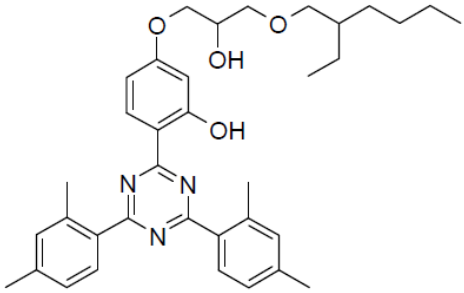
Tinuvin 405 is a solid triazine-based UV absorber for coatings. It is designed to meet the high performance and durability requirements of acrylic powder coatings for transportation and industrial applications.

Key Features & Benefits

- Excellent long-term photo permanence
- Excellent thermal stability
- Non-migrating
- Ideal for glycidyl-methylacrylate-type (GMA) powder coatings due to low melting temperature
- Does not interact with amine- and/or metal-catalyzed coating systems or coatings applied on base coats or substrates containing such catalysts

Chemical Structure

2-Hydroxyphenyl-s-triazine



Properties

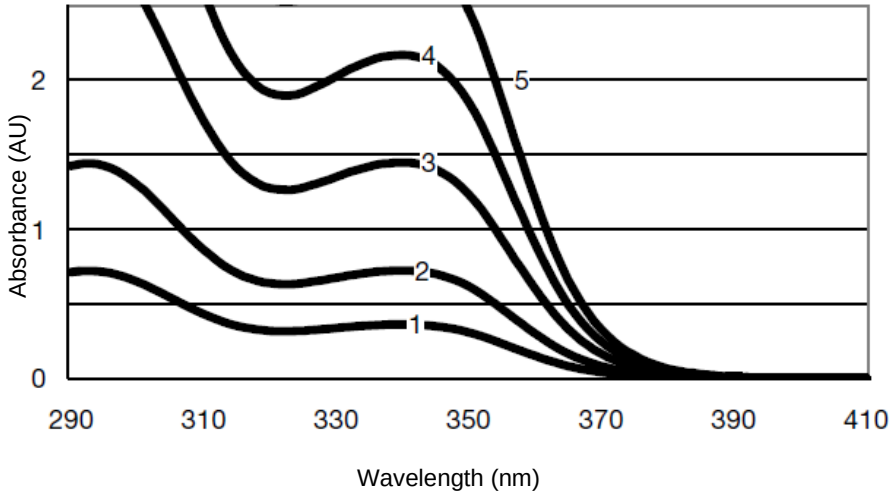
Typical Properties

Appearance		light yellow powder
CAS number		137658-79-8
Molecular weight	g/mol	583.8
Melting point	°C (°F)	73 - 77 (163 - 171)

Solubility: Tinuvin 405 is soluble up to 20% in most organic solvents, easy to incorporate into water-based systems by use of co-solvents.

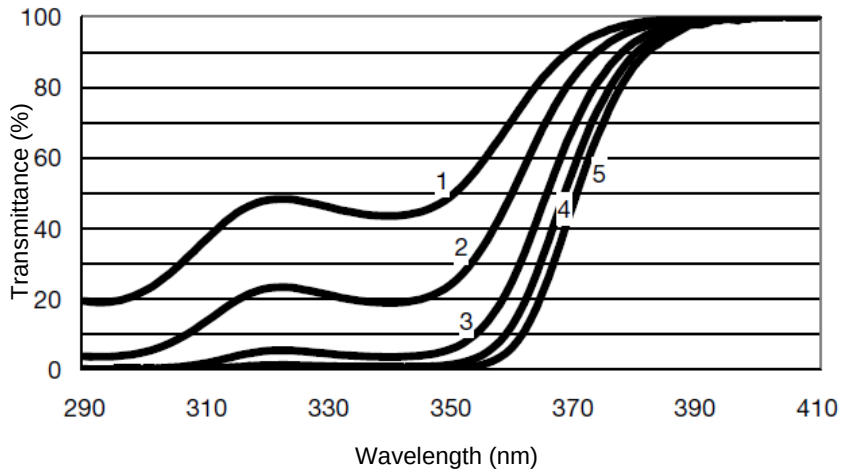
* These typical values should not be interpreted as specifications.

UV Absorbance Spectrum



Line one: 10 mg/l (0.001% Tinuvin 405, corresponds to 0.25% active in 40 µm film)
Line two: 20 mg/l (0.002% Tinuvin 405, corresponds to 0.50% active in 40 µm film)

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 toluene with the help of the Lambert-Beer law. Spectra were recorded in toluene, light path length = 1 cm.)



Line three: 40 mg/l (0.004% Tinuvin 405, corresponds to 1.00% active in 40 µm film)
Line four: 60 mg/l (0.006% Tinuvin 405, corresponds to 1.50% active in 40 µm film)
Line five: 80 mg/l (0.008% Tinuvin 405, corresponds to 2.00% active in 40 µm film)

Applications

Tinuvin 405 is designed to fulfill the high performance and durability requirements of acrylic powder coatings.

Tinuvin 405 is recommended for applications such as:
- High performance automotive OEM powder coatings
- High performance industrial powder coatings

For outdoor applications, Tinuvin 405 needs to be combined with a hindered amine light stabilizer (HALS) such as Tinuvin 144 or Tinuvin 152.

Recommended concentrations

The amount of Tinuvin 405 required for optimum performance should be determined in laboratory trials covering a concentration range.

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

10 µm – 20 µm:	8.0 % – 4.0 wt % Tinuvin 405
20 µm – 40 µm:	4.0 % – 2.0 wt % Tinuvin 405
40 µm – 60 µm:	2.0 % – 1.5 wt % Tinuvin 405

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 405.

Storage

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

Important

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BASF Corporation
Dispersions and Resins
11501 Steele Creek Road
Charlotte, North Carolina 28273
Phone: (800) 251 – 0612
Email: CustCare-Charlotte@basf.com
www.basf.us/dpsolutions