UV absorber

**general**

Tinuvin® 479 is a solid triazine-based UV absorber for coatings, adhesives, sealants and printing inks. It was designed to meet the highest performance and durability requirements in thin films or at reduced film thickness in solvent-based transportation and industrial applications including radiation-curable systems (UV, electron beam).

- extremely high extinction coefficient
- highest long-term performance (photo permanence)
- highest thermal stability
- does not interact with amine- and/or metal-catalyzed coating systems or coatings applied on base coats or substrates containing such catalysts
- non-migrating

**chemical nature**

![Chemical structure of Tinuvin® 479](image)

2-hydroxyphenyl-s-triazine

**CAS number**

204848-45-3

**molecular weight**

677.9 g/mol

**Properties**

**physical form**

light yellow powder

**storage**

When kept in original unopened containers and at temperatures of 5 - 35 °C (41 - 95 °F), Tinuvin® 479 can be stored for up to 3 years from the date of manufacture.

**typical properties**

| glass transition temperature (92/69/EEC A. 1) | 86 – 90 °C (187 – 194 °F) |
solubility

up to 30 % soluble in Solvesso® 100 or butyl acetate (CAS No. 123-86-4)

spectral properties

UV absorbance

UV transmittance

<table>
<thead>
<tr>
<th></th>
<th>% Transmittance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 mg/l (0.001 % ≈ 0.25 % active in 40 µm)</td>
</tr>
<tr>
<td>2</td>
<td>20 mg/l (0.002 % ≈ 0.50 % active in 40 µm)</td>
</tr>
<tr>
<td>3</td>
<td>40 mg/l (0.004 % ≈ 1.00 % active in 40 µm)</td>
</tr>
<tr>
<td>4</td>
<td>60 mg/l (0.006 % ≈ 1.50 % active in 40 µm)</td>
</tr>
<tr>
<td>5</td>
<td>80 mg/l (0.008 % ≈ 2.00 % active in 40 µm)</td>
</tr>
</tbody>
</table>

The theoretical concentration 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.
Application

fields of application

Due to its extremely high extinction Tinuvin® 479 is especially suitable for all reduced-film-thickness or thin-film applications exposed to high baking temperatures and/or to extreme environmental conditions.

- high-performance automotive and transportation coatings
- high-performance industrial coatings
- plastic coatings over PC, PMMA, PET, sheets, films, packaging, ...
- overprint varnishes over metal, board, paper, laminates, ...
- glass coatings and glass bonding layers
- adhesives and sealants

For outdoor applications, Tinuvin® 479 needs to be combined with a hindered amine light stabilizer (HALS) such as Tinuvin® 123 (for acid-catalyzed systems), Tinuvin® 292 (for 2K PUR), Tinuvin® 152 (for coatings over plastics and powder) or Tinuvin® 144 (for powder).

binder systems

- 1K and 2K PUR (acrylic/NCO, PES/NCO, …)
- thermosetting (acrylic/melamine, PES/melamine, …)
- thermoplastic (acrylic, vinlylic, …)
- epoxy/carboxy (amine- or metal-catalyzed)
- UV-curable systems (acrylic, PES, …)

recommended concentrations

The concentration of Tinuvin® 479 depends on dry-film thickness and desired degree of protection. The amount required for optimum performance should be determined in trials covering a concentration range.

<table>
<thead>
<tr>
<th>dry-film thickness</th>
<th>by weight on binder solids</th>
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</thead>
<tbody>
<tr>
<td>10 – 20 µm</td>
<td>4.0 – 2.0 %</td>
</tr>
<tr>
<td>20 – 40 µm</td>
<td>2.0 – 1.0 %</td>
</tr>
<tr>
<td>40 – 60 µm</td>
<td>1.0 – 0.5 %</td>
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</tbody>
</table>

For optimum spectral coverage, Tinuvin® 479 should be combined with a triazine-based UV absorber such as Tinuvin® 400 (liquid paints) and Tinuvin® 405 (powder coatings). The ratio of Tinuvin® 479 and Tinuvin® 400 (Tinuvin® 405) should be 1:1, 2:3 or 1:2.

Safety

When handling this product please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.

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