Ciba® TINOPAL® OB
Fluorescent Whitening Agent

General
TINOPAL OB is a fluorescent optical brightener that shows:
• brilliant bluish whitening effects
• excellent heat resistance
• high chemical stability
• good compatibility in a wide range of resins

Chemical Composition

![Chemical Structure](image)

2,5-thiophenediylbis(5-tert-butyl-1,3-benzoxazole)

Molecular Weight: 430.6  CAS No. 7128-64-5

Absorption and Emission Spectra
in DMF
cell thickness: 1 cm

Physical Properties
Appearance: yellow powder
Melting point/range: 196-203 °C
Ciba Specialty Chemicals
Coating Effects Segment

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Specific density at 20°C: 1.26 g/cm³

Solubility (g/100 g solution) at 20°C:
- Acetone 0.5
- Chloroform 14
- Dimethylformamide 0.8
- Dioxane 2
- n-Hexane 0.2
- Methanol 70.1
- Methyl ethyl ketone 1.3
- Tricresylphosphate 0.8
- Xylene 5
- Water 70.01

Application

TINOPAL OB is recommended for applications such as:

- White and pastel tone paints where it intensifies the degree of whiteness.
- Clear coats and overprint varnishes where it is used to mask the yellowish self color and also to intensify the brilliance of white and colored base coats.
- Primer and/or topcoats where it is used as marker to identify voids, holidays and uneven coverage.
- Black and blue printing inks to increase their deep tone.
- Printing inks for quick identification, security and safeguard against forgeries (i.e. banknote).
- Packaging inks as promotional tool or as tracer for packaging lines.
- Manufacture of fluorescent pigments/dyestuffs to reinforce the brightness of certain shades, particularly blue tones.
- Thermal dye diffusion paper to enhance paper whiteness.
- Film base for photographic paper.

If TINOPAL OB must be used in combination with a UV absorber, the absorption spectrum of the latter must leave an open window in the near UVA for the optical brightener.

Due to the intrinsic light fastness properties of optical brighteners, TINOPAL OB is recommended for indoor use only.

Recommended concentrations:

<table>
<thead>
<tr>
<th>Application</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>Clear coats and overprint varnishes</td>
<td>0.02 - 0.1 % TINOPAL OB</td>
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<tr>
<td>Marker in primers</td>
<td>2.0 - 4.0 % TINOPAL OB</td>
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Concentrations are based on weight % binder solids and depend on degree of desired brightening effect:

<table>
<thead>
<tr>
<th>White coatings</th>
<th>TINOPAL OB</th>
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<td>0.5 - 5 %</td>
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Concentrations are based on % by weight of pigment and depend on the degree of desired whiteness.

**Safety and Handling**

TINOPAL OB should be handled in accordance with good industrial practice. Detailed information is provided in the Safety Data Sheet.

**Important Notice**

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