



Mayzo Makes It Possible

## Benetex® OB

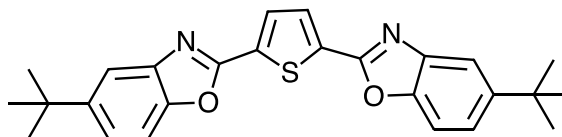
### Optical Brightener, Fluorescent Whitening Agent

#### Overview

Benetex OB is a heat resistant, solvent soluble, chemically stable fluorescent whitener that increases the whiteness and provide brighter looking colors in plastics, coatings, inks, synthetic fibers, waxes, fats, and oils. It serves to offset the inherent yellowness of a polymer and to yield a whiter appearance. Optical brighteners function by a fluorescence process involving absorption of invisible UV light and emission of visible blue light. Benetex OB is also useful as a fluorescent tracer in many applications.

#### Chemistry

Chemical Name: 2,5-Thiophenediylbis(5-*tert*-butyl-1,3-benzoxazole)  
CAS Number: 7128-64-5  
Chemical Structure:



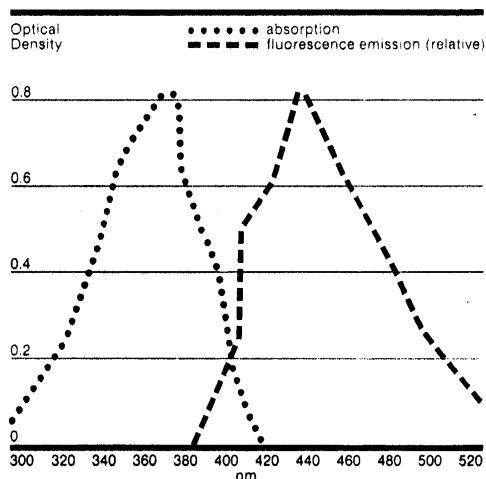
#### Typical Properties

Product Form: Solid  
Melting Range: 192 – 208°C  
Molecular Weight: 430.6 g/mol

#### Solubility (g/100 mL, 25°C)

Acetone	0.2	Ethylene Glycol	0.2
Butanol	0.2	<i>n</i> -Hexane	0.2
Carbon tetrachloride	5	Methanol	0.05
Chlorobenzene	10	Methyl ethyl ketone (MEK)	1
Chloroform	14	Methylene chloride/methanol (9:1)	2
Cyclohexanone	3	Tetrahydrofuran	5
Dimethylformamide	0.8	Toluene	5
Diocetylphthalate	0.7	Turpentine	0.1
Dioxane	2	Xylene	5
Ethyl acetate	1	Water	<0.01

## Absorption and Emission (Fluorescence) Spectra



Solvent	Ethanol
Concentration	7 mg/L
Layer thickness	1 cm
Absorption max.	375 nm
Fluorescence max.	435 nm

## Applications

**Plastics** – Benetex OB is used to impart excellent brightness in plastics, including PVC, polyethylene, polypropylene, cellulose acetate, polystyrene, polycarbonate, acrylics, polyurethane, linear polyester, and polyamides (nylon).

**Coatings** – Benetex OB provides an excellent means to determine coverage of either conventional or UV cured coatings. Small amounts act as a tracer which, when viewed under a black light, indicate whether or not uniform coating coverage has been achieved. This effect is especially useful for clear coatings where coverage can be difficult to determine by conventional means. Benetex OB can also be used to offset the yellowness of coatings to provide a whiter appearance.

**Printing Inks** – Benetex OB may be used in printing inks to facilitate the quick identification of security bonds, and also in bank notes as a safeguard against forgeries. The product may also be combined with dyes to produce particularly bright shades, especially pronounced in pastel shades.

**Synthetic fibers** – Benetex OB imparts a lightfast brightness with good textile fastness properties to PVC and acetate fibers.

**Adhesives & Sealants** – Benetex OB is used to increase whiteness and brightness, and is also useful as a tracer to ensure that uniform coverage by the adhesive or sealant has been achieved.

Main applications include fibers, molded articles, films, sheets, clear lacquers, paints, printing inks, and synthetic leather.

## Advantages

- Brilliant, bluish white effect that compensates for yellowing
- Good light fastness and low volatility
- Exceptional whitening properties
- Highly compatible with a wide range of organic substrates and solvents
- Excellent resistance to heat
- Useful as a tracer in clear coatings, adhesives, and sealants
- In combination with dyes, produces particularly bright shades
- FDA cleared for use in all polymers, adhesives, and pressure-sensitive adhesives

### **Guidelines for Use**

Recommended loading concentrations for Benetex OB range between 5 and 10 ppm (0.0005-0.001%) in unpigmented polyolefins and between 50 and 1000 ppm (0.005-0.1%) in other substrates. The product can be used alone or in a variety of blends and combinations with other additives, including antioxidants, processing stabilizers, and light stabilizers. Higher load levels of Benetex OB are required if it is used in combination with a UV absorber. The exact formulation to be used is dependent on the substrate, performance requirements, and other factors, and should be determined by the user based on testing to simulate actual conditions of use. Please contact Mayzo for specific recommendations.

### **Storage**

This product may be stored up to two years in a sealed container. Containers should be kept tightly closed when not in use and stored in a cool, dry place.

### **Safety**

Please consult the Safety Data Sheet (SDS) prior to handling or using this product.

### **FDA Regulations**

Benetex OB has been cleared for use in adhesives under 21 CFR §175.105, in pressure sensitive adhesives under 21 CFR §175.125, and in all polymers under 21 CFR §178.3297. Please contact your Mayzo representative for complete details, including restrictions of use.

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