



Optical Brighteners:

Optical Brighteners are added to many materials to reduce yellowing, improve whiteness and to enhance the brightness of a product.

We introduce the following Optical Brighteners

- Optical Brightener OB
- Optical Brightener OB-1

Above Brighteners give very brilliant shades in following applications:

- ✓ Fiber like polyester, Polyamide & PP.
- ✓ Plastics like PS, HIPS, ABS, PC, Polyolefin's, Rigid PVC etc.
- ✓ Detergents, Soaps, Papers etc.
- ✓ Inks, Paints, Films etc.

❖ Technical Specification:

- **Optical Brightener OB**

CI No. 184

CAS No. 7128-64-5

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

Optical Brightener OB is a high molecular weight fluorescent whitening agent which significantly improves the whiteness in thermoplastics, printing inks, Lacquers, Man-made fiber etc.

Optical Brightener OB Produces very brilliant white with light reddish Blue effect to, which compensates for yellowing to. It has good light fastness in substrates, excellent resistance to heat, high chemical stability, Soluble in a wide range of organic solvents. It gives Brilliant, Bluish white effect.

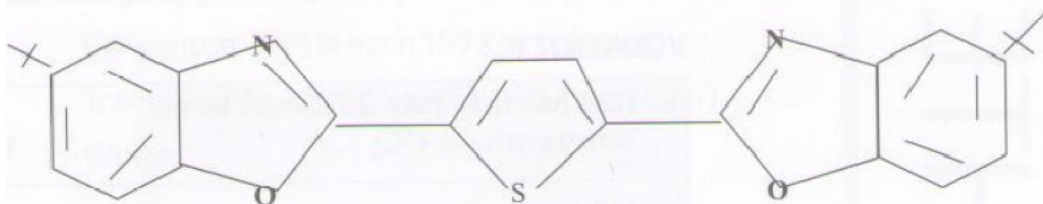


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STRUCTURE :



SPECIFICATION:

APPEARANCE	Pale Yellow Crystalline Powder
MOLECULAR FORMULA	C ₂₆ H ₂₆ N ₂ O ₂ S
MOLECULAR WEIGHT	443
MELTING POINT	198 ± 3°C
SPECIFIC GRAVITY	1.26
λ MAX (CHCl ₃)	375 nm
ASSAY:	99% (Min)
ASH	0.5% (Max)
VOLATILE MATTER	0.5% (Max)

VOLATILITY:

TGA heating rate 20°C/min in air Temperature (°C)	Volatility Weight loss (%)
280	1.0
310	2.0
325	5.0

LIGHT FASTNESS IN VARIOUS SUBSTRATES:

SUBSTRATES	Light Fastness (on Blue scale)
PVC	4-7
PE	2-4
PP	1-4
Cellulose Acetate	5-7
PS	2-5
Acrylic Resin Lacquers	4-5
Polyamide	3-5
Liner Polyester	7



SOLUBILITY

SOLVENT	% SOLUBILITY
ETHANOL	0.1
ACETONE	0.5
MEK	1.3
TOLUENE	5.3
CTC	5.9
DMF	0.8
CHLOROBENZENE	10.2
DOP	0.7
ETHYL ACETATE	1.1
MEG	0.2
CYCLOHEXANONE	3.3
XYLENE	5.0

MIGRATION:

It has a negligible tendency to migrate at normal concentration and the level of resistance meets all practical requirements.

Note : The information given is only indicative and it is essential that the user should test the suitability of the whitener for his particular process.

APPLICATION:

1) PVC:

A brilliant white is obtained in Rigid and plasticized PVC with using only small concentrations of OPTICAL BRIGHTENER OB with Rutile titanium dioxide.

Slightly greater concentration is required with Anatage titanium dioxide.

Concentration (in each 100 Kgs polymer)

Transparent: 0.0001-0.002% (0.1 gm-2gm)

White : 0.01-0.05% (10gm-50gm)



2) POLYSTYRENE:

The Yellow cast of Polystyrene can be completely masked by using:

OPTICAL BRIGHTENER OB

Concentration (in each 100 Kgs polymer)

Transparent: 0.0001-0.002% (0.1 gm-2gm)

White : 0.001-0.005% (1gm-5gm)

3) ABS

Acrylonitrile butadiene styrene copolymers are invariably yellowish in color. Their appearance can be improved by small quantity of white pigment and OPTICAL BRIGHTENER OB.

Concentration (in each 100 Kgs polymer)

White : 0.01-0.05% (10gm-50gm)

4) POLYOLEFINS:

OPTICAL BRIGHTENER OB gives very brightening effect in Polyethylene and in Polypropylene. The brightener is homogeneously mixed with the plastic powder or granules.

Concentration (in each 100 Kgs polymer)

Transparent: 0.0005-0.001% (0.5gm-1gm)

White : 0.005-0.05% (5gm-50gm)

Blown film : 0.0005-0.001 (0.5gm-1gm)

5) MAN-MADE FIBERS:

Optimal whiteness with excellent light fastness and good textile fastness is attainable in acetate fibers. The brightener is dissolved in acetone and added to the spinning dope

Delustrated fibers : 0.01-0.1% (10g-100gm)

Lustrous fibers : 0.005-0.05% (5gm-50gm)

6) CLEAR LACQUERS:

Many clear lacquers have an intrinsic yellowish color. OPTICAL BRIGHTENER OB intensifies the brilliance of any white or colored pigmented coating underneath the lacquer. OPTICAL BRIGHTENER OB is dissolved in a thinner and stirred into the colored lacquer.

Coating thickness 20 : 0.05-0.5% on solid content



- **Optical Brightener OB-1**

Optical Brightener OB-1 is a high molecular weight fluorescent whitening agent which significantly improves the whiteness in both textile fibers and plastics.

PROPERTIES:

CI No. 393

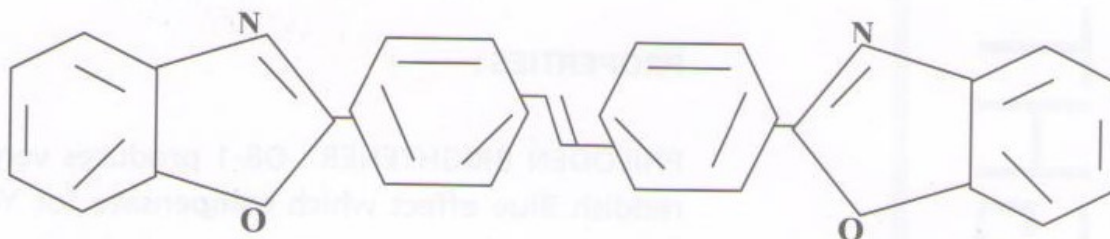
CAS No. 1533-45-5

Chemical Name: 4,4' – bis (benzoxazol – 2 – yl) stilbene

Optical Brightener OB – 1 produces very brilliant white with light reddish Blue effect which compensate for yellowing. It has good light fastness. Because of its exceptional whitening properties, excellent resistance to heat, low volatility and easy dispersibility it is now widely used in plastic market. It has good compatibility in various substrates, in combination with dyes it produces bright shades.

Brightener OB – 1 is used in polymer fibers especially polyester and polyamide fibers. It is also widely used in PP, ABS, PS, HIPS, PA, PC, EVA, Rigid PVC etc.

STRUCTURE:



VOLATILITY:

TGA heating rate 20°C/min in air Temperature (°C)	Volatility Weight loss (%)
380	0.2
350	2.2
400	19.4



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SPECIFICATION:

APPEARANCE	Pale Yellow Crystalline Powder
MOLECULAR FORMULA	C ₂₈ H ₁₈ N ₂ O ₂
MOLECULAR WEIGHT	414.4
ODOUR	ODOURLESS
MELTING POINT	357 ± 5°C
SPECIFIC GRAVITY	1.35
ASSAY:	99%
ASH	0.5% (Max)
VOLATILE MATTER	0.5% (Max)
λ ^{MAX} (Ethanol)	374 nm (Absorption)
SOLUBILITY	Insoluble in water, Methanol, Acetone, Chloroform, at 25°C

APPLICATION: (in each 100 Kgs Polymer)

Transparent: 0.0025% – 0.0050% (2.50 gm – 5.00 gm)

White : 0.01% – 0.05% (10 gm – 50 gm)

The concentration to be used depends on substrate and the required whitening performance.

Note: The information given is only indicative and it is essential that the user should test the suitability of the whitener for his particular process.