
Technical Information

Tinopal® CBS-X

Fluorescent Whitening Agent for Laundry Products.

November 2020 | Supersedes issue dated March 2011 | Last change WF-No. 26019

08_101035e-01/Page 1 of 6

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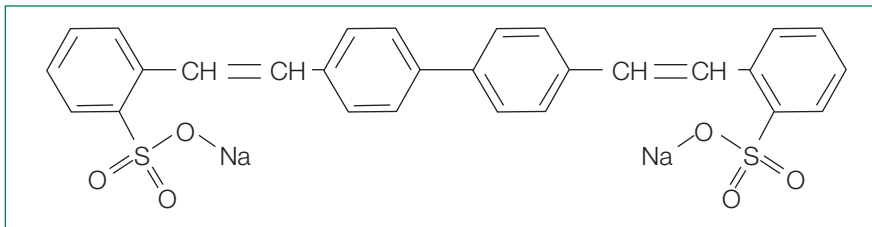
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Introduction

Tinopal® CBS-X is a Fluorescent Whitening Agent for incorporation in detergents, giving brilliant white effects on cellulosic fibers over the whole temperature range, especially from cold to medium washing temperatures.

Chemical nature

Tinopal® CBS-X is a 4,4'-Distyryl biphenyl derivative (DSBP).

**PRD-No.***

30475071

* BASF's commercial product numbers.

Appearance

Tinopal® CBS-X is a yellow to greenish granulate or granulate material at room temperature.

Handling and Storage**Handling**

- Tinopal® CBS-X should be stored in a dry place.
- Tinopal® CBS-X is hygroscopic which means it can absorb moisture very quickly. Opened containers must be resealed tightly after each removal of product to prevent absorption of moisture.
- Do not expose Tinopal® CBS-X to environments with high humidity.
- Avoid long exposure to temperatures above 70 °C in order to prevent discoloration. Product can be exposed short term up to 80 °C.
- Please refer to the latest Safety Data Sheet for detailed information on product safety.

Shelf life

Tinopal® CBS-X has a shelf life of at least 5 years in its original packaging, provided it is stored properly.

Materials

The following materials can be used for handling and storage:

- Stainless steel 1.4401 – AISI 316 (X5 CrNiMo 17-12-2)
- Stainless steel 1.4404 – AISI 316 L (X2 CrNiMo 17-13-2)
- Stainless steel 1.4571 – AISI 316 Ti (X6 CrNiMoTi 17-12-2)
- HDPE – high density polyethylene
- LDPE – low density polyethylene

Properties

Some physical properties are listed in the table below. These are typical values only and not all of them are monitored on a regular basis. They are correct at the time of publication and do not necessarily form part of the product specification. A detailed product specification is available on request or via BASF's WorldAccount: <https://worldaccount.basf.com> (registered access).

Tinopal® CBS-X	Unit	Value
Physical form (25 °C)		solid
Molecular weight (M.W.)	g/mol	562.6
Absorbance (7.5 mg/L in dist. water, 349 nm, 10 mm)		0.829 – 0.885
Absorbance E1/1 (1% in dist. water, 349 nm, 10 mm)		1105 – 1181
Active substance (1% in dist. water, 349 nm, 10 mm)	%	90 ± 3
pH value (EN 1262, 25 °C, 1 % in water)		approx. 6
Bulk density (ISO 697)	g/L	approx. 580
Color APHA (EN 1557, 25 °C, 1 % in dist. water)		approx. 450
Solubility (100 g/L in dist. water, 70 °C)		Clear, no parts

Solubility

Details on the solubility of Tinopal® CBS-X in various solvents are given in the table below.

Solubility of Tinopal® CBS-X (1% at 25 °C)

Distilled water	+
Potable water	–
Caustic soda (5%)	–
Hydrochloric acid (5%)	–
Salt solution (5%)	–
Solvent naphtha	–
Ethanol, Isopropanol	–
Aromatic hydrocarbons	–

+ = *clear soluble*

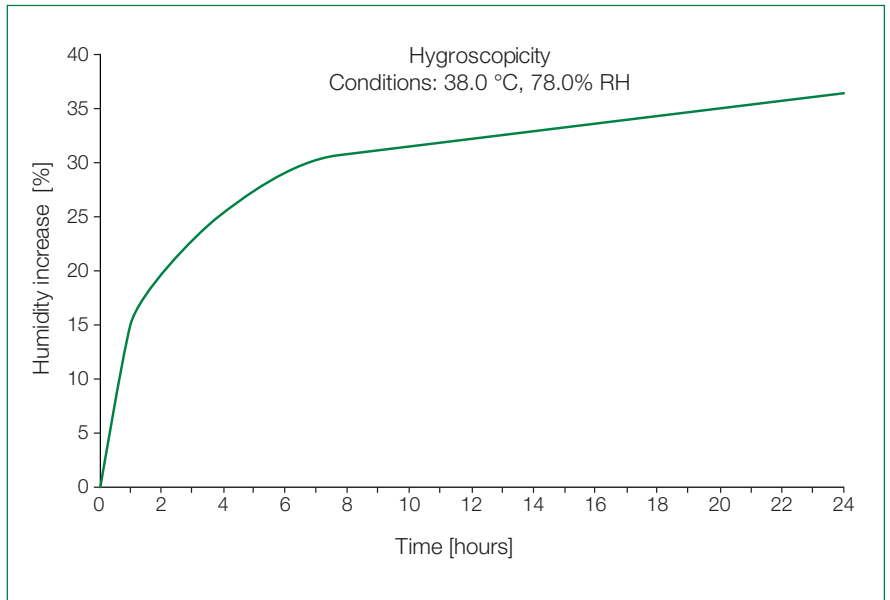
± = *sparingly soluble (insoluble sediment)*

– = *insoluble (phase separation)*

o = *forms an opaque soluble, homogeneous emulsion*

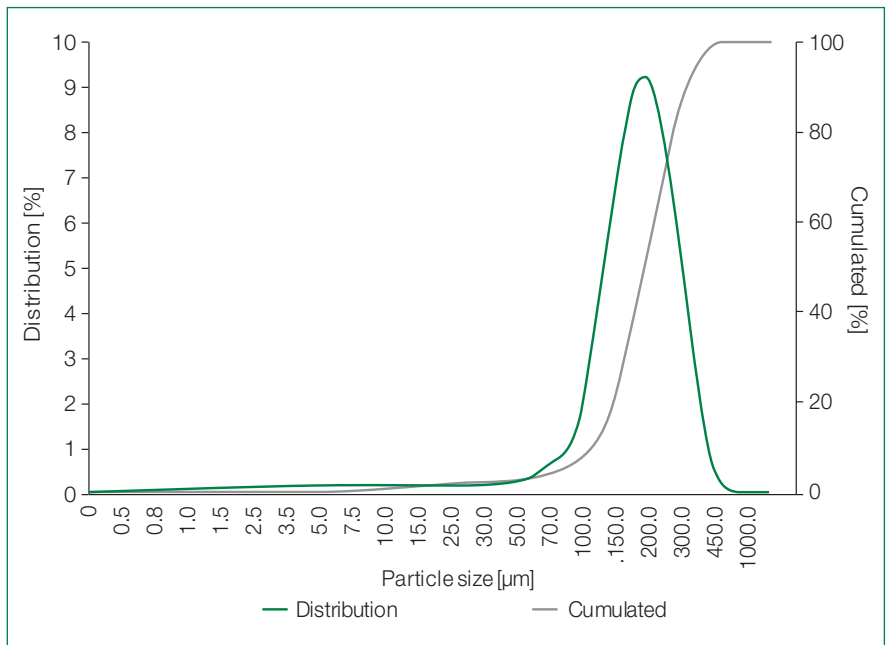
Hygroscopicity

For storage and processing of Tinopal® CBS-X it is important to know how the product behaves at elevated temperatures and humidity. The following graph shows this dependency (approximate values):



Particle size distribution

The following graph and table shows the particle size distribution of Tinopal® CBS-X (approximate values):



D₁₀	D₅₀	D₉₀
110 µm	200 µm	330 µm

Application

Tinopal® CBS-X is equally suitable for incorporation in washing powders, liquid detergents, liquid mono-dose products, industrial detergents, detergent bars, washing creams, fabric softeners, soaps and boosters due to its very good stability and solubility.

Features/benefits**Improved detergent aspect**

Tinopal® CBS-X significantly improves the shade consistency and white appearance of detergents such as conventional and compact powders, soaps, liquid detergents and softeners.

High whiteness delivery

Tinopal® CBS-X yields intense white effects on cellulosic fibers over the whole temperature range, i.e. from cold to hot washings.

Excellent cold wash performance

Tinopal® CBS-X incorporated in detergents is highly soluble in water at low temperatures and therefore yields high white effects even with at low washing temperatures and short washing times.

Very good leveling properties

Due to its high solubility, Tinopal® CBS-X demonstrates very good leveling properties: This is an important factor with compact powders and direct dosing.

Improved stability

Tinopal® CBS-X is stable when used with bleaching agents such as hypochlorite and peroxide, as well as to alkali and acids.

Improved light fastness

Tinopal® CBS-X exhibits very good wet and dry light fastness. Ensures whiteness consistency even when washing is dried outside.

Low spotting

Due to its good leveling properties Tinopal® CBS-X is a low spotting FWA, a critical factor for compact and liquid detergents.

Shade consistency

Even with repeated washing Tinopal® CBS-X delivers an intense whiteness on Cellulosic fibers without greening. In other words, white stays whiter for longer.

Easy dosing

Tinopal® CBS-X consists of free-flowing granules that facilitate dosing during detergent manufacturing and maintains plant cleanliness due to very low dusting.

Easy formulation

The high solubility of Tinopal® CBS-X allows easy formulation in all kinds of liquid detergents including ultra concentrates and liquid mono-doses.

Guidelines for use

Tinopal® CBS-X can be easily processed by any method of incorporation such as spray-drying, agglomerating, post blending and spray blending.

The recommended areas of application for Tinopal® CBS-X are summarized below together with incorporation levels based on detergent weight.

Conventional detergent powders	0.05 – 0.25%
Compact detergent powders	0.10 – 0.40%
Liquid detergents	0.05 – 0.40%
Liquid mono-dose	0.10 – 0.50%
Detergent bars	0.05 – 0.15%
Soap bars	0.02 – 0.05%
Industrial detergents	0.20 – 1.00%
Fabric softeners	0.02 – 0.05%
Boosters	0.20 – 1.00%
Creams	0.05 – 0.15%

Safety and Labelling

Please refer to the safety data sheet for information on classification & labelling, safe use, handling and transport.

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November 2020