

Note

This document, or any answers or information provided herein by BASF, does not constitute a legally binding obligation of BASF. While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only.

Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use.

It does not relieve our customers from the obligation to perform a full inspection of the products upon delivery or any other obligation.

NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE.

Labelling

Details about the classification and labelling of our products and further advice on safe handling are contained in the current safety data sheets.

® = Registered trademark of BASF group

™ = Trademark of BASF group

BASF SE

Care Chemicals & Formulators Europe
Carl-Bosch-Straße 38

67056 Ludwigshafen, Germany

Tel.: +49 621 60-0

www.care-chemicals-formulators.basf.com

BTC Speciality Chemicals Distribution GmbH

Maarweg 163/165

50825 Köln, Germany

Tel.: +49 221 9 54 64-0

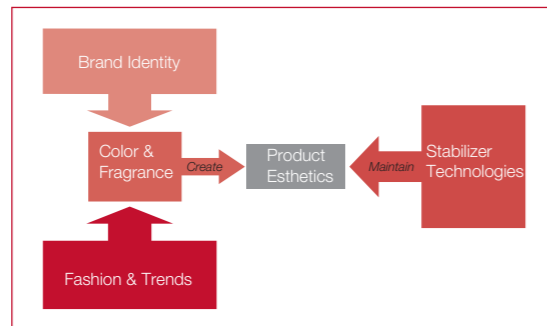
www.btc-de.com

Stabilizers

Cibafast and Tinogard

Consumer Product companies link the sensorial appeal of their products to their brand image.

In many cases, ingredients like colorants and fragrances are not stable and there is a need for highly efficient, effective stabilizers or stabilizer packages for even greater shelf appeal.



Excited state quenchers

Tinogard QA

Excited State Quencher technology reduces the potential for degradation reactions by minimizing the lifetime of excited states and inhibiting side reactions of excited states intermediates.

UV-light stabilizers

Cibafast HA Liquid

Tinogard HSA

Tinogard TLA

Tinogard and Cibafast UV Light Stabilizers with broad band UV absorption properties offer new UV light stabilization solutions specifically tailored to the needs of home and fabric care industry to protect colors and other light-sensitive ingredients from photolytic and/or photo-oxidative degradation.

Antioxidants

Tinogard TTA

Tinogard NOA

Tinogard TSA

Tinogard antioxidants are specifically designed to over-come the problems associated with BHT and BHA and help to maintain the color and fragrance integrity of home and fabric care products.

Excited state quenchers

	Appearance	Physical form	Active content	Solubility	Recommended use levels	Shelf life
Tinogard QA	Yellow to slightly brown	Liquid	10%	Water and alcohol soluble	0.01 – 0.05%	18 months

UV-light stabilizers

	Appearance	Physical form	Active content	Solubility	Recommended use levels	Shelf life
Cibafast HA Liquid	Yellow to brown	Liquid	33%	Water and alcohol soluble	0.03 – 0.2%	18 months
Tinogard HSA	White	Powder	100%	Water and alcohol soluble	0.01 – 0.1%	60 months
Tinogard TLA	Yellow	Liquid	100%	Oil and alcohol soluble	0.01 – 0.1%	36 months

Antioxidants

	Appearance	Physical form	Active content	Solubility	Recommended use levels	Shelf life
Tinogard TTA	White to off-white	Powder	100%	Oil soluble	0.01 – 0.1%	60 months
Tinogard NOA	White to off-white	Powder	100%	Oil soluble and water compatible	0.01 – 0.1%	60 months
Tinogard TSA	White to off-white	Fine granules	100%	Oil soluble and water compatible	0.01 – 0.1%	60 months

Typical applications

Product type	Fluorescent whitening agents									Photocatalytic systems				Oxidation catalyst	Ingredient protectants							
	DSBP-type FWAs			DAS-type FWAs			Others								ESQ	UV-light stabilizers			Antioxidants			
Product name	Tinopal CBS-X	Tinopal CBS SP Slurry 33	Tinopal CBS-CL	Tinopal AMS-GX	Tinopal DMA-X Conc.	Tinopal DMA-X	Tinopal AMS Slurry 43	Tinopal 56M-GX	Tinopal SWN Conc.	Tinolux BMC Liquid	Tinolux BMC Solid	Tinolux BBS	Tinolux BSR	Tinocat TRS KB2	Tinogard QA	Cibafast HA Liquid	Tinogard HSA	Tinogard TLA	Tinogard TTA	Tinogard NOA	Tinogard TSA	
Laundry Care																						
Liquid laundry detergents	■	■	■						■	■	■	■			■	■	■	■	■	■	■	■
Powder laundry detergents	■	■		■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■
Laundry bar soaps	■	■		■	■	■				■	■	■			■	■	■	■	■	■	■	■
Rinse conditioners/softeners	■	■	■						■	■	■	■	■		■	■	■	■	■	■	■	■
Laundry aids	■	■	■						■	■	■	■		■	■	■	■	■	■	■	■	■
Fabric Care															■	■	■	■	■	■	■	■
Upholstery and carpet care															■	■	■	■	■	■	■	■
Surface Care															■	■	■	■	■	■	■	■
Multi-purpose cleaners															■	■	■	■	■	■	■	■
Dishwashing & rinse aids															■	■	■	■	■	■	■	■
Floor cleaners															■	■	■	■	■	■	■	■
Toilet cleaners															■	■	■	■	■	■	■	■
Glass cleaners															■	■	■	■	■	■	■	■
Disinfectants															■	■	■	■	■	■	■	■
Polish, waxes & protectants															■	■	■	■	■	■	■	■
Air Care															■	■	■	■	■	■	■	■
Air freshners & deodorizers															■	■	■	■	■	■	■	■
Cleaning tools															■	■	■	■	■	■	■	■
Wet wipes															■	■	■	■	■	■	■	■

Optical Effect Products



■ Tinocat®

■ Tinopal®

■ Tinolux®

■ Tinogard®

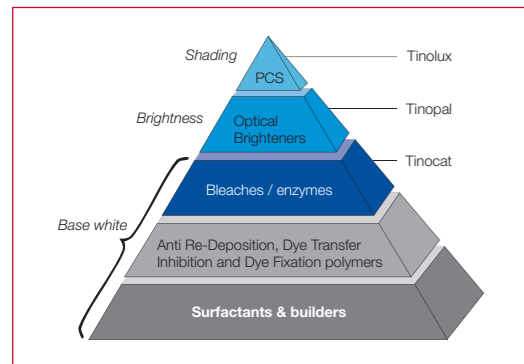
■ Cibafast®

Optical Effect Products

Optical Effect Products consist of two major sub-groups: Whiteness in fabric laundry and Stabilizers for ingredient protection

Whiteness in Fabric Laundry

Detergent whiteness pyramid



Whiteness in fabric laundry is built up successively by three processes which can be represented by a whiteness pyramid: Base White, Brightness and Shading.

BASF Optical Effect Products contribute to all three foundations and allow for balanced detergent formulations which provide cleaning, add brightness and produce shading effects.

Clean, stain-free, base whitened fabric is a prerequisite for efficient whitening. Tinopal optical brighteners absorb UV and emit blue light to compensate the inherent yellow cast of textile substrates and produce brilliant neutral whites. The blue tinted Tinolux range of photo-catalytic systems (PCS) add photo-bleaching and shading effects to further enhance this brilliant, blue white perception.

Tinocat

Tinocat is a unique, highly efficient and gently acting metal catalyst specifically designed to improve bleaching performance at cold wash temperatures and prevent the loss of base white. The readily soluble blue granule is recommended for use in bleaching additives, stain removers and laundry detergents. It is a strong stain remover which acts gently on dyes and fibres.

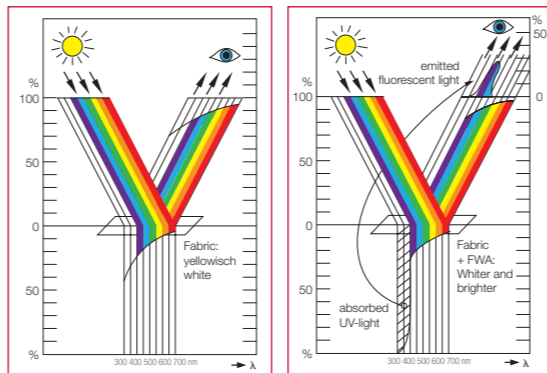
Tinopal

Tinopal optical brighteners give bright neutral white shade to cellulosic and synthetic fabrics even after repeated washes at low to high washing temperatures. The Tinopal CBS range is light fast, bleach stable, and far more soluble than conventional stilbene brighteners – leading to exceptional performance at low temperatures. Technically superior and versatile, Tinopal comes as free flowing granules, stable low viscosity aqueous dispersion, or as a clear solution to meet all formulation needs.

Tinolux

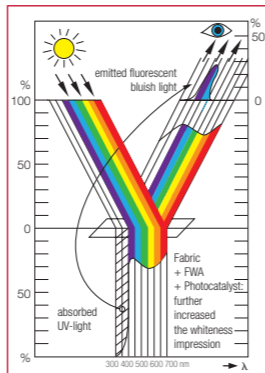
Tinolux is a photocatalytic system designed to produce high cleaning and bleaching performance. Excellent photo-bleaching and efficient photo-shading is achieved at low washing temperatures and concentrations. Superior tinting effects are obtained without causing over hue after successive laundering cycles.

Whiteness enhancement & maintenance



Case a:
Fabric

Case b:
Fabric washed with detergent powder containing FWA



Case c:
Fabric washed with detergent powder containing FWA and photocatalyst

Explanation of the diagram

Case a

Base whitened fabric inherently absorbs visible light at the blue end of the spectrum leading to a dull yellowish white. Tinolux and Tinopal products compensate this dulling and yellowing by two different modes of action.

Case b

Tinopal products absorb UV radiation and emit blue visible light – quantitatively adding to brightness and whiteness intensity.

Case c

Tinolux photocatalysts absorb long wavelength light – particularly yellow/red from the visible spectrum. As the reflected light is slightly blued the yellow cast of the fabric is consequently minimized. The combination of these two different effects, the emitted blue light generated by Tinopal and the bluish cast delivered by Tinolux, improves the final whiteness perception and makes laundered fabrics appear noticeably whiter and brighter.

Fluorescent whitening agents (FWAs)

Name	Chemistry	CAS-No.	MWt	Physical form	Active content	Solubility	E1/1 Absorbance	Stability to bleach	Recommended wash temp	Recommended use level	Shelf life
Tinopal CBS-X	Distyryl biphenyl derivative	27344-41-8	562,5	Free flowing granule	90%	25.0 g/l	1105 – 1181	Stable	15 – 95 °C	0.05 – 0.40%	5 years
Tinopal CBS SP Slurry 33	Distyryl biphenyl derivative	27344-41-8	562,5	Flowable suspension	30%	75.0 g/l	368 – 394	Stable	15 – 95 °C	0.15 – 1.20%	1 year
Tinopal CBS-CL	Distyryl biphenyl derivative	27344-41-8	562,5	Clear solution	10%	250.0 g/l	119 – 133	Stable	15 – 95 °C	0.50 – 3.50%	2 years
Tinopal AMS-GX	Diamino stilbene derivative	16090-02-1	924,0	Free flowing granule	86%	1.5 g/l	540 – 580	Moderate	25 – 95 °C	0.10 – 1.50%	5 years
Tinopal DMA-X Conc	Diamino stilbene derivative	16090-02-1	924,0	Free flowing granule	86%	1.5 g/l	540 – 580	Moderate	25 – 95 °C	0.10 – 1.50%	5 years
Tinopal DMA-X	Diamino stilbene derivative	16090-02-1	924,0	Free flowing granule	67%	1.5 g/l	418 – 453	Moderate	25 – 95 °C	0.15 – 1.60%	5 years
Tinopal AMS Slurry 43	Diamino stilbene derivative	16090-02-1	924,0	Flowable suspension	36%	3.0 g/l	224 – 244	Moderate	25 – 95 °C	0.20 – 2.00%	1 year
Tinopal 5BM-GX	Diamino stilbene derivative	13863-31-5	900,4	Free flowing granule	68%	2.5 g/l	439 – 466	Moderate	15 – 80 °C	0.10 – 1.60%	5 years
Tinopal SWN Conc	Coumarin derivative	91-44-1	231,0	Non dusting powder	100%	Slightly soluble	1009 – 1071	Moderate	25 – 95 °C	0.01 – 0.20%	5 years

Photocatalytic systems

	Chemical structure	Appearance	Charge	Solubility	Recommended use level	Shelf life
Tinolux BMC Liquid	Sulfonated tetrabenzo-tetraazaporphine derivative	Dark blue liquid	Anionic	Readily soluble	0.01% – 0.04%	8 months
Tinolux BMC Solid	Sulfonated tetrabenzo-tetraazaporphine derivative	Greenish black fine granules	Anionic	Readily soluble	0.01% – 0.04%	24 months
Tinolux BBS	Sulfonated tetrabenzo-tetraazaporphine derivative	Greenish black fine granules	Anionic	Readily soluble	0.01% – 0.04%	24 months
Tinolux BSR	Sulfonated tetrabenzo-tetraazaporphine derivative	Dark blue greenish fluid	Anionic	Readily soluble	0.20% – 2.00%	9 months

	Tinolux BBS	Tinolux BMC
Photostability	Medium	Low
Photobleach performance	High	High
Photofading	Medium	High
Tinting build up	Medium	Low

* Tinolux BSR is formulated to be used in rinse conditioners and softeners.

Oxidation catalyst

	Chemical structure	CAS-No.	Appearance	Solubility in water	Enzyme compatibility	Recommended use level	Recommended wash temp	Shelf life	DID list#
Tinocat TRS KB2	Manganese complex with an organic tripodal ligand	61007-89-4	Blue granules	Insoluble	Compatible	0.5% – 2.0%	25 °C – 40 °C	2 years	203