

Technical Information

Leucophor BMF liq

Leucophor® BMF Powder conc./Liquid

Universally applicable fluorescent brightener for cellulosic fibres and their component in blends with synthetic fibres

- is particularly suitable for padding processes
 - in weakly acid reactant resin finishing liquors
 - in strength and filling finishes
 - in semicontinuous and continuous peroxide bleaches
- is suitable as an addition to discharge pastes for white discharges
- produces neutral to slightly reddish brightening effects with a high maximum whiteness
- is distinguished by good light and wetfastness properties.

1 Properties

Appearance

- Powder product pale yellow powder
- Liquid product brownish yellow, viscous liquid

Chemical character stilbene derivative

Ionic character anionic

Strength relationship 1 kg powder corresponds to 2.8 kg or 2.35 l of the liquid product

Bulking volume of Powder product 430 ± 30 g/l

Density of Liquid product at 20°C 1.20 ± 0.05 g/cm³

pH (1% solution or dilution)

- Powder product 8.5 ± 1
- Liquid product 9.0 ± 1

Solubility/Dilutability

- Powder product dissolve by pouring over hot water.
Solubility at
20°C: 350 g/l
50°C: 580 g/l
95°C: 680 g/l
- Liquid product dilutable with cold water in any proportion

Influence of light the product and working solutions must be protected against light

Storage stability

- Powder product unlimited
- Liquid product the product may crystallize out at temperatures below -15°C but dissolves again on heating and stirring and is fully effective

Stability of solutions to

- hard water very good
- acids good to ca. pH 3.5 in acid catalyzed resin liquors
- alkalis very good, is applicable in reinforcing bleachliquors
- electrolytes very good
- silicates good
- sodium hydrosulphite very good
- hydrogen peroxide very good
- sodium hypochlorite not stable
- sodium chlorite not stable

Compatibility of solutions with

- resin precondensates
● catalysts
- very good in the region of pH values over 3.5
very good in the region of pH values over 3.5; if nitrate catalysts are used the goods must be scoured thoroughly to achieve optimum lightfastness values
- anionic and nonionic softeners
 - anionic and nonionic wetting agents
 - cationic softeners
- very good
very good
in most cases not compatible; losses in whiteness must be expected

Ecotoxicological data

see Safety Data Sheet

2 Fastness properties

			Rating
Light	ISO 105/B02		3-4
Washing 3, 60°C	ISO 105/C03		4-5
Washing 4, 95°C	ISO 105/C04		4
Hypochlorite bleach	ISO 105/N01		3-4
Peroxide bleach	ISO 105N02		4-5
Nitrogen oxide	ISO 105/G01		3-4
Gas fume fading	IOS 105/G02		4
Dry heat	ISO 105/P01	180°C	4-5
		210°C	4

3 Scope of application

Leucophor BMF is primarily suitable for brightening

- cellulosic fibres (e.g. cotton, linen, viscose)
- cellulosic/synthetic fibre blends especially polyester/cellulose blends in combination with the suitable **Leucophor** and **Hostalux*** products for the polyester component.

It is applicable in resin finishing liquors such as

- crease resistant finishes
- wash and wear finishes

as well as

- strength, filling and handle finishes

and semicontinuous and continuous peroxide bleaches such as the

- pad batch process
- pad roll process
- pad steam process
- immersion bleach process

and

- as an addition to white discharges.

Leucophor BMF produces brilliant brightening effects with a neutral to weakly reddish shade on woven and knit goods.

3.1 Padding process

Thanks to its low substantivity and good compatibility with the products used in the finishing of white goods **Leucophor BMF** is ideally suitable for brightening cellulosic fibres by the padding process for application in filling and handle finishes as well as the usual resin liquors catalyzed to pH 3.5.

For use in stronger acid catalyzed resin finishing liquors, i.e. in the region below pH 3.5, we recommend

- **Leucophor BCR Powder conc./Liquid**
- **Leucophor BFB Powder conc./Liquid**
- **Leucophor BLB Liquid**
- **Leucophor BLR Liquid.**

3.2 Continuous bleaching

Leucophor BMF with its good stability in bleaching liquors is particularly suitable for application in semicontinuous and continuous peroxide bleaches by the

- pad batch process
- pad roll process
- pad steam process
- immersion bleaching process.

3.3 Exhaust process

Leucophor BMF can also be applied by the exhaust method (e.g. in the peroxide bleach) primarily when higher affinity brighteners cause levelness problems (e.g. with very short liquor ratios on package, beam and jig dyeing machines). In these cases, however, hard water and/or an addition of salt must be used.

Optimum exhaustion is achieved with an electrolyte addition at liquor temperatures of 60-80°C. At higher temperatures the brightener does not exhaust completely.

For the exhaust process with long liquor ratios (e.g. winch) and for temperatures over 100°C we recommend the higher affinity products:

- **Leucophor BSB Powder conc./Liquid**
- **Leucophor PC Liquid.**

4 Application

4.1 Dissolving/diluting

Leucophor BMF Powder conc. can be dissolved by pouring over hot water and stirring; if necessary it can be boiled up briefly with live steam.

Leucophor BMF Liquid can be diluted with cold water in any proportion.

Note

The stock and working solutions are sensitive to light and must therefore be protected from daylight and the sun.

4.2 Padding process

(pickup ca. 80%)

Cellulosic fibres

- Brightening without any addition

0.2 - 2 g/l **Leucophor BMF Powder conc.** or
0.5 - 5 g/l **Leucophor BMF Liquid**

- In handle and filling finishes
0.2 - 3.5 g/l **Leucophor BMF Powder conc.** or
0.5 - 10 g/l **Leucophor BMF Liquid**
- In resin finishing liquors
0.2 - 3.5 g/l **Leucophor BMF Powder conc.** or
0.5 - 10 g/l **Leucophor BMF Liquid**
- In continuous peroxide bleaching
0.5 - 5 g/l **Leucophor BMF Powder conc.** or
2 - 15 g/l **Leucophor BMF Liquid**
- In white discharges
0.5 - 7.5 g/kg **Leucophor BMF Powder conc.** or
2 - 20 g/kg **Leucophor BMF Liquid**

Polyester/cellulose blends

The applied amounts must be related to the relevant fibre component.

- Brightening of the cellulosic component
0.2 - 3.5 g/l **Leucophor BMF Powder conc.** or
0.5 - 10 g/l **Leucophor BMF Liquid**
- Brightening of the polyester component
With selected polyester brighteners from the **Hostalux** and **Leucophor ranges**.
Depending on the product applied a heat treatment for 30-45 s between 170-190°C is required to fix the polyester brightener.

4.3 Exhaust process

Cellulosic fibres

- with salt
0.1 - 0.5 % **Leucophor BMF Powder conc.** or
0.2 - 1.5 % **Leucophor BMF Liquid**
2 - 5 g/l Glauber salt cryst.
- Peroxide bleach
0.2 - 1 % **Leucophor BMF Powder conc.** or
0.5 - 2 % **Leucophor BMF Liquid**
2 - 5 g/l Glauber salt cryst.*

* if stabilized with sodium silicate and magnesium chloride, the salt can be omitted.

Polyester/cellulose blends

The applied amounts must be related to the relevant fibre component.

- Brightening of the cellulosic component
The amount of **Leucophor BMF** corresponds to that required for the relevant exhaust process.
- Brightening of the polyester component e.g.
 - 0.2 - 0.8 % **Leucophor EFN Liquid conc. or**
 - 0.1 - 0.5 % **Leucophor EHR Liquid conc. / Hostalux ESR Liquid**If applied at the boil it is necessary to add a carrier (e.g. **Dilatin® NAN Liquid**) for good bath exhaustion, especially with **Leucophor EHR Liquid conc.** and **Hostalux ESR Liquid.**

5 Sample recipes

5.1 Padding process

- **Filling finish**
 - 20 - 60 g/l **Appretan® F Liquid**
 - 0.5 - 1 ml/l **Sandozin* NRW Liquid high conc.**
 - 0.2 - 3.5 g/l **Leucophor BMF Powder conc. or**
 - 0.5 - 10 g/l **Leucophor BMF Liquid**- pad at ca. 80% pickup
- dry at ca. 140°C.
- **Soft handle finish (hydrophilic)**
 - 10 - 50 g/l **Dilasoft® RS Liquid**
 - 0 - 15 g/l **Sandoperm* MEW Liquid**
 - 0.2 - 3.5 g/l **Leucophor BMF Powder conc. or**
 - 0.5 - 10 g/l **Leucophor BMF Liquid**- pad at ca. 80% pickup
- dry at ca. 140°C.
- **Wash and wear finish (cotton)**
 - 30 - 40 g/l **Arkofix® NDL Liquid conc.**
 - 0.5 - 1 ml/l **Sandozin* NRW Liquid high conc.**
 - 10 - 20 g/l **Ceraperm® SAP Liquid**
 - 10 - 20 g/l **Sandoperm MEW Liquid**
 - 9 - 12 g/l magnesium chloride
 - 0.1 - 0.5 g/l acetic acid (60%)
 - 0.2 - 3.5 g/l **Leucophor BMF Powder conc. or**
 - 0.5 - 10 g/l **Leucophor BMF Liquid**pH 4-5
- pad at ca. 80% pickup
- cure at ca. 140°C
- cure for 3-5 min at 160-140°C or
shock cure for 60-30 s at 165-180°C.

- **Crease-resistant finish (viscose)**

40 - 70	g/l	Arkofix NDL Liquid conc.
20 - 30	g/l	Finish PU Liquid
0.5 - 1	ml/l	Sandozin NRW Liquid high conc.
1 - 1.5	g/l	Catalyst PU Liquid
10 - 16	g/l	Catalyst NKS Liquid
0.2 - 3.5	g/l	Leucophor BMF Powder conc. or
0.5 - 10	g/l	Leucophor BMF Liquid

pH 4-5

- pad at ca. 80% pickup
- cure at ca. 140°C
- cure for 3-5 min at 160-140°C or
- shock cure for 60-30 s at 165-180°C.

5.2 Continuous bleach

- Pad roll process

silicate-free

0.3	g/l	magnesium chloride (or water hardness 6 - 12°e)
3 - 8	ml/l	Sandopan BFN Liquid or
3 - 8	ml/l	Sandoclean PC Liquid
6 - 10	ml/l	Stabilizer SIFA Liquid
10 - 15	g/l	caustic soda solid
30 - 50	ml/l	hydrogen peroxide 35%
0.5 - 5	g/l	Leucophor BMF Powder conc. or
2 - 15	g/l	Leucophor BMF Liquid

or

with silicate

0.3	g/l	magnesium chloride (or water hardness 6 - 12°e)
3 - 8	ml/l	Sandopan BFN Liquid or
3 - 8	ml/l	Sandoclean PC Liquid
4 - 6	ml/l	Stabilizer CS Liquid
2 - 4	ml/l	Sirrix® AK Liquid
8 - 12	ml/l	sodium silicate 38°Bé
10 - 15	g/l	caustic soda solid
30 - 50	ml/l	hydrogen peroxide 35%
0.5 - 5	g/l	Leucophor BMF Powder conc. or
2 - 15	g/l	Leucophor BMF Liquid

- pad at ca. 80% pickup
- batch for 20 - 120 min at 90 - 100°C
- wash off as hot as possible.

- Pad steam process

silicate-free

0.3	g/l	magnesium chloride (or water hardness 6 - 12°e)
3 - 6	ml/l	Sandopan BFN Liquid or
3 - 6	ml/l	Sandoclean PC Liquid
6 - 10	ml/l	Stabilizer SIFA Liquid
10 - 20	g/l	caustic soda solid
20 - 60	ml/l	hydrogen peroxide 35%
0.5 - 5	g/l	Leucophor BMF Powder conc. or
2 - 15	g/l	Leucophor BMF Liquid

or

with silicate

	0.3 g/l	magnesium chloride (or water hardness 6 - 12°e)
3 - 6 ml/l		Sandopan BFN Liquid or
3 - 6 ml/l		Sandoclean PC Liquid
4 - 6 ml/l		Stabilizer CS Liquid
2 - 4 ml/l		Sirrix AK Liquid
5 - 10 ml/l		sodium silicate 38°Bé
10 - 20 g/l		caustic soda solid
20 - 60 ml/l		hydrogen peroxide 35%
0.5 - 5 g/l		Leucophor BMF Powder conc. or
2 - 15 g/l		Leucophor BMF Liquid

- pad at ca. 80% pickup
- steam for 2 - 20 min at 102 - 105°C
- wash off as hot as possible.

5.3 Exhaust process

- Without bleach

0.5 - 1 ml/l		Sandopan BFN Liquid
2 - 5 g/l		Glauber salt cryst.
0.1 - 0.5 %		Leucophor BMF Powder conc. or
0.2 - 1.5 %		Leucophor BMF Liquid

liquor ratio 5:1 to 20:1

- treat for 15 - 30 min at 60-80°C.

- With bleach

silicate-free

	0.3 g/l	magnesium chloride (or water hardness 6 - 12°e)
0.5 - 1 ml/l		Sandopan LFW Liquid or
0.5 - 1 ml/l		Sandopan BFN Liquid
0.3 - 0.5 ml/l		Stabilizer SIFA Liquid
2 - 5 ml/l		caustic soda 36°Bé
5 - 10 ml/l		hydrogen peroxide 35%
2 - 5 g/l		Glauber salt cryst.
0.2 - 1 %		Leucophor BMF Powder conc. or
0.5 - 2 %		Leucophor BMF Liquid

or

with silicate

	0.3 g/l	magnesium chloride (or water hardness 6 - 12°e)
0.5 - 1 ml/l		Sandopan LFW Liquid or
0.5 - 1 ml/l		Sandopan BFN Liquid
2 - 4 ml/l		sodium silicate 38°Bé
0.5 - 2 ml/l		caustic soda 36°Bé
5 - 10 ml/l		hydrogen peroxide 35%
0.2 - 1 %		Leucophor BMF Powder conc. or
0.5 - 2 %		Leucophor BMF Liquid

liquor ratio: 5:1 to 20:1

- treat for 60-90 min at 80 - 95°C

or

- for 40-20 min at 110 - 115°C.

6 Shading

By adding small amounts of selected shading dyes it is possible to increase the visual impression of whiteness and adjust the shade to the fashion requirements.

Shading dye	Applicable amount	Shade
Foron® Brilliant Violet S-3RL	0.003-0.01 g/l	violet
Foron Brilliant Violet E-BLN	0.003-0.01 g/l	blue-violet
Foron Blue S-BGL 200	0.003-0.01 g/l	blue
Sandolan* Milling Red N-FBL 180	0.003-0.02 g/l	violet
Sandolan Blue E-HRL 180	0.003-0.02 g/l	blue

7 Stripping/levelling

Unlevel brightening effects can usually be improved by an additional treatment at the boil for 20-30 min with a further addition of

0.1 - 0.3% **Leucophor BMF Liquid**

If yellowing occurs, no matter what the cause, a weak peroxide bleach with a little brightener is carried out or the material is reduction cleared.

Brightening effects with **Leucophor BMF** can be quenched by a chlorite bleach.

Depending on the amount of brightener applied, the brightening effect can be significantly reduced to quenched by a treatment

by the exhaust method with

2 - 10% **Quencher OB Liquid**
for 30-45 min at 40-60°C

by the padding method with

10-100 g/l **Quencher OB Liquid**
- pad cold at ca. 80% pickup
- dry at ca. 140°C.

A brightening effect quenched with **Quencher OB Liquid** can be overdyed but subsequent brightening to a high degree of whiteness is no longer possible.

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The information and recommendations presented here were compiled with the utmost care, but cannot be extended to cover every possible case. They are intended to serve as non-binding guidelines and must be adapted to the prevailing conditions.