



Bioguard ZERO

TECHNICAL INFORMATION

Bioguard ZERO is a fluoro free hydrophobic agent for generating water repellency, rainproof finishing on mainly cellulosic fibers and their blends with synthetic based fibers.

GENERAL PROPERTIES

- **Bioguard ZERO** has good compatibilities with other textile auxiliaries.
- **Bioguard ZERO** displays low sensitivity to residues on the goods.
- **Bioguard ZERO** offers highest durability performance.
- **Bioguard ZERO** is not supplying oil repellent effects.
- **Bioguard ZERO** is excellently biodegradable: > 90% (28 d, DOC decrease) ;
Method: OECD Test Guideline 302B

PHYSICAL PROPERTIES

Appearance :	liquid, White dispersion
Composition:	Dispersion of fat-modified compounds and paraffin
Ionicity:	Weakly cationic
pH (5% aq.)	About 5
Density	About 1.00 g/cm ³
Flash point	>100°C
Dilutability	Miscible in all proportions with (cold) water
Compatibility with other finishing products :	Compatible with numerous crosslinking agents, catalysts, softeners and other textile auxiliaries. Preliminary trials should in principle be carried out.

Thermomigration	the product has some tendency to thermomigration, therefore the pre-trials are recommended for polyester.
Biodegradability	>90 % (28d, DOC decrease); Method: OECD Test Guideline 302B
Storage	Can be kept for at least 6 months if stored correctly (between 5°C and 40°C).

APPLICATION PROPERTIES

Hydrophobic effect

Very good values of durability are achieved if the product is used in accordance with the recommendations.

Handle

Neutral to soft handle

APPLICATION

Bioguard ZERO is preferable applied by padding.

Exhaust method is possible, too. But pre-trials have to be made first.

Before using **Bioguard ZERO** stirring and putting through a strainer or filter before diluting is recommended.

Depending on the type of fibre and requirements, the amounts used are 50 - 150 g/l for padding.

For cellulose crosslinking agents can be added. They are dissolved according to its instructions, then CATALYST and acetic acid are stirred in and diluted **Bioguard ZERO** is stirred in.

Required amount (padding)

100 % cotton	50 - 100	g/l Bioguard ZERO (liquor pick up 60-75 %)
Textiles required for authorities	100 - 150	g/l Bioguard ZERO
Viscose lining	70 - 100	g/l Bioguard ZERO (liquor pick-up 80-90 %)

In aqueous coatings up to 100 g/l **Bioguard ZERO**, calculated on applied polymer dispersion (stir undiluted in the prepared coating paste) Compatibility test with coating dispersion is essential.

Preparation of the goods:

The water repellent effects can be impaired by residues of auxiliaries on the goods being finished such as fibre finish oils, sizes, surfactants or dyeing assistants. This is also the case when silicone - containing finish oils or softeners have been applied on the fabric.

We therefore recommend preliminary washing with 1 g/l Bioquest SA followed by rinsing and acidification with 1 ml/l acetic acid 60 %.

The same impairment of the repellent effects will occur by adding analogous auxiliaries into the finishing bath.

To avoid impairment of the effects, mechanical treatments such as calendering, schreiner, brushing, etc. should be avoided. Steaming and decatizing processes may be carried out after curing, as an improvement of the effects could result. Raising and emerizing processes should be carried out before the finish.

Spray application (not product specific)

Aerosols are generated through the spraying technique that potentially may be hazardous to health. For this reason spray application can only be safely conducted if sufficient ventilation equipment is installed at the product application site which will prevent spreading of the aerosols into the workplace. An alternative would be to carry out the spraying application in a closed system.

4 Application examples

Padding

Padding at bath temperature	approx. 20 - 25 °C
pH of the completed bath	approx. 4.0 - 5.0
Drying temperature	110 - 130 °C
Separate curing	3 min at 150 °C on curing machine or 30 - 60 s (real curing time) at 140 - 175 °C on stenter

Suggested recipes

Pad application:

1) Cotton/polyester articles

30	g/l	Bioguard XCR
1	ml/l	acetic acid 60 %
70	g/l	Bioguard ZERO
5 - 10	g/l	PE Emulsion

2) Cotton, e. g. trousers

60	g/l	Bioguard XCR
1	ml/l	acetic acid 60 %
100	g/l	Bioguard ZERO
0 - 10	g/l	PE Emulsion

3) Polyester articles

60	g/l	Bioguard ZERO
5 - 10	g/l	PE Emulsion

For best performance on PES the pH of the bath should be around 7

Exhaustion (pretests required):

3 - 6 % **Bioguard ZERO**

pH 5 - 5.5 (adjusted with acetic acid 60 %)

Liquor ratio 10:1 - 30:1

Process:

Treat : 5 min at 20 - 25 °C

Heat up (1 °C/min) to maximal 40 °C

Treat for 30 - 40 min at 40 °C

Remove liquor and dry without rinsing, temperature 110 °C

Separate curing 3 min at 150 °C on curing machine or

30 - 60 s (real curing time) at 140 - 175 °C on stenter

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