BEZAKTIV HE-MATRIX

Hot-Dyeing in Perfection

UNIQUE IDEAS. UNIQUE SOLUTIONS.

CHT
BEZEMA

PERFECTION BEYOND LIMITS

Reactive dyes are providing particularly brilliant colours on cotton. The BEZAKTIV dyes are always the perfect solution for versatile use on cotton and cellulosic fibers. So qualitative dyeings with high levels of fastness on fabrics, textiles and clothes will be combined with wearing comfort and inspiring colour emotions.

> UNBEATABLE DYES FOR CELLULOSE

The assortment of BEZAKTIV dyes from BEZEMA offers a wide range of system solutions for cellulosic fibers. Special selections each of which with unique properties are providing the highest qualities. Whether for exhaust or continuous dyeing – the range of high quality BEZAKTIV dyes is securing application on the highest level.

BEZAKTIV HE-MATRIX – THE PERFECT TERNARY FOR THE HIGHEST DEMANDS

BEZAKTIV HE-MATRIX dyes are hot-dyeing dyes with an outstanding combinability. Their unmatched robustness towards variations in the process parameters makes this ternary the new state of the art. Due to their chemical constitution, they are applied mainly in exhaust dyeing.

The ternary is distinguished by the following properties:

- Perfect combinability of all elements
- Excellent leveling dyeing properties
- Outstanding reproducibility due to unique robustness towards process variations
- Colour intensive and economical ternary with a good colour build-up
- High oxidative resistance in laundering
- Very high level of wet fastness
- Good stability to peroxid
- High colour constancy at mercerisation
- Meets established ecological standards

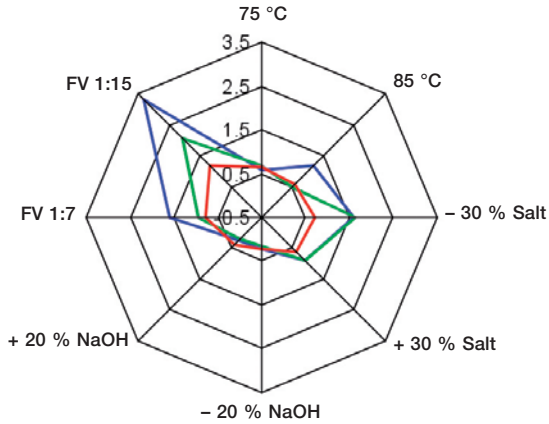
PERFECT PROPERTIES FOR TERNARY

> PERFECT REPRODUCIBILITY

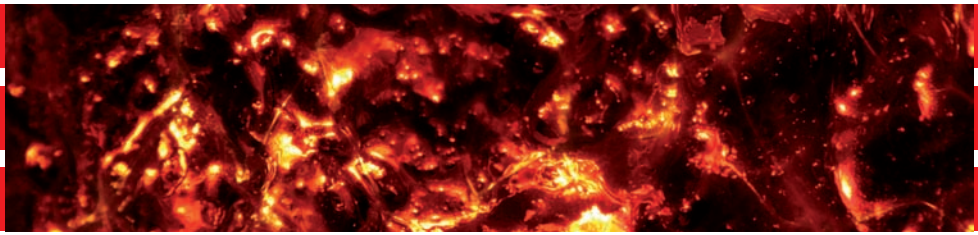
Variations in the process parameters are the main cause for problems with reproducibility. These can be differences in temperature from machine to machine, deviations in the applied amount of salt and alkali or different liquor ratios.

Conventional dyes in a ternary respond individually to these process parameters. The BEZAKTIV HE-MATRIX ternary posseses highest robustness towards these variations of parameters. Thus differences in hue can be avoided. The following graphic illustrates the robustness of BEZAKTIV HE-MATRIX.

Total difference of shade (Delta E)

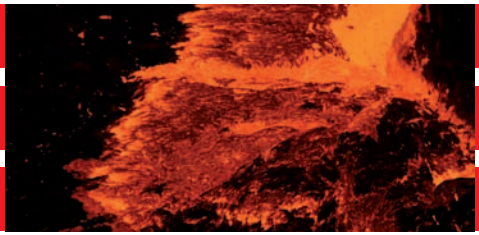


CLEAR COURSE TOWARDS TO PERFECT SHADE CONSTANCY



> PERFECT COMBINABILITY

Perfect combinability is characterised by a matched neutral substantivity and fixation rate of all elements of the BEZAKTIV HE-MATRIX ternary.

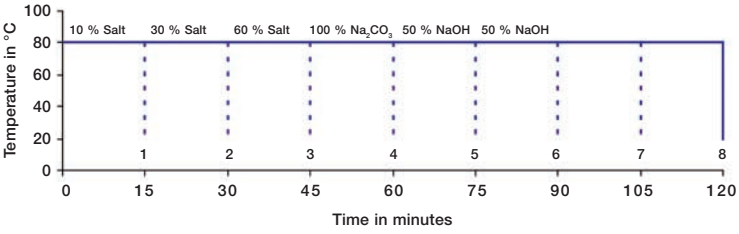


> TONE-IN-TONE COLOUR BUILD-UP

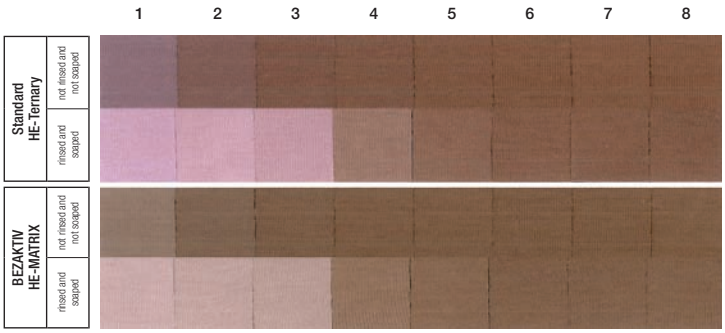
The following illustration provides clear evidence of the excellent shade constancy of the BEZAKTIV HE-MATRIX ternary during the dyeing process.

The BEZAKTIV HE-MATRIX ternary already reaches the final shade directly after the addition of sodium carbonate with a dH well below 0.5 compared to the complete dyeing.

Dyeing process with dosing of salt and alkali

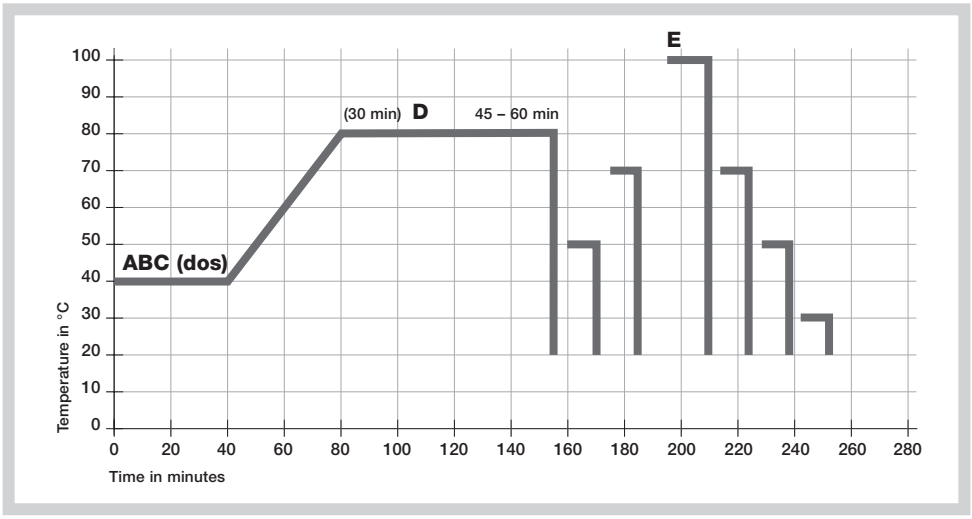


Shade



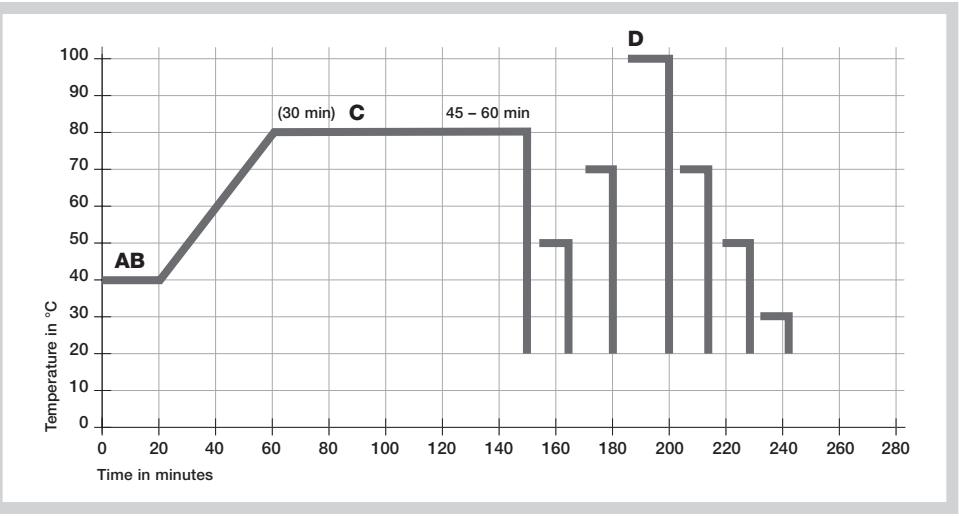
DYEING METHODS

Standard process up to 1 % colour depth
Due to high substantivity it is recommended for light dyeings up to 1 % colour depth to dose the salt after adding the dyestuff. With apparatus, the dye should be added quickly, while with jet machines a slow dyestuff dosing renders best levelness. Without salt, the substantivity is lower hence a larger part of the dyestuff remains in the liquor which improves the migration and levelness. The followed dosing of the salt gives a controlled increase of substantivity and an even exhaustion of the remaining dyestuff. The raising of the temperature improves migration and penetration. The fixation is initiated by addition of alkali. When a combination of sodium carbonate and caustic soda is used, the dosing of caustic soda should be started 15 min after the completed dosing of sodium carbonate at 80 °C.



A	1.0 – 2.0	g/l	SARABID LDR / MIP
	1.0 – 2.0	g/l	BIAVIN BPA
	2.0	g/l	MEROPAN XRN PEARLS
B	x	%	BEZAKTIV HE-MATRIX
C	20.0 – 80.0	g/l	Glauber's salt (add within 20 min)
D	5.0	g/l	Sodium carbonate
	1.0 – 2.5	ml/l	Caustic soda 38 °Bé
			Mixture within 30 minutes by linear dosing
E	1.0	g/l	COTOBLANC SEL (pH 7–8)

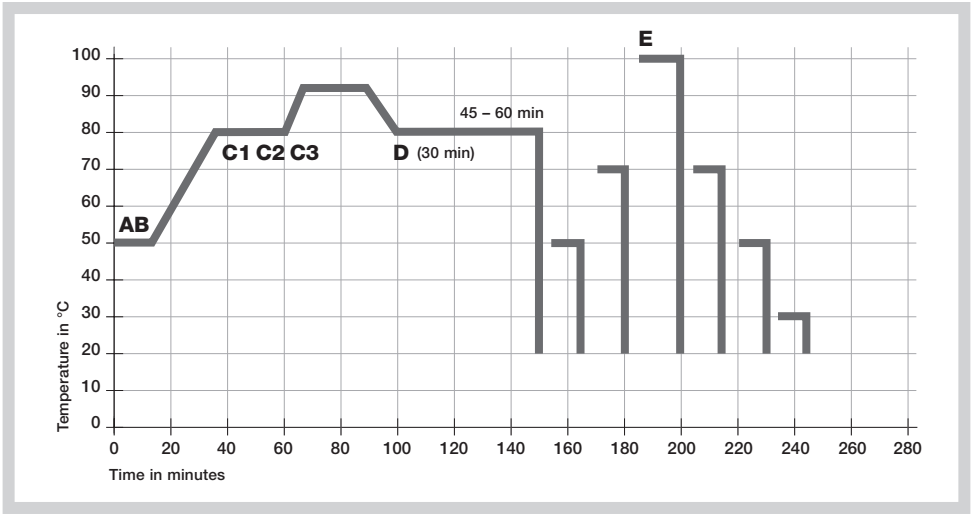
Standard process above 1 % colour depth
Due to the tone-in-tone exhaustion of the BEZAKTIV HE-MATRIX dyes, the salt addition can be moved forward for dyeings above 1 % colour depth. With apparatus, the dye should be added quickly, while with jet machines a slow dyestuff dosing renders best levelness. An increase in the temperature improves the migration and diffusion of the dyes. The fixation is initiated by the addition of alkali. When a combination of sodium carbonate and caustic soda is used, the dosing of caustic soda should be started 15 min after the completed dosing of sodium carbonate at 80 °C.



A	1.0 – 2.0	g/l	SARABID LDR / MIP
	1.0 – 2.0	g/l	BIAVIN BPA
	2.0	g/l	MEROPAN XRN PEARLS
	20.0 – 80.0	g/l	Glauber's salt
B	x	%	BEZAKTIV HE-MATRIX
C	5.0	g/l	Sodium carbonate
	1.0 – 2.5	ml/l	Caustic soda 38 °Bé
			Mixture within 30 minutes by linear dosing
D	1.0	g/l	COTOBLANC SEL (pH 7–8)

Migration process

The increase in temperature in the neutral phase enables a better penetration in the case of articles which are difficult to dye. Mercerised cotton, linen and regenerated fibres in particular can be dyed safely and level with this process. The high migration temperature is also favourable for very dense articles or when dye penetration in wound packages with a high package density is critical.



A		1.0 – 2.0	g/l	SARABID LDR / MIP
		1.0 – 2.0	g/l	BIAVIN BPA
		2.0	g/l	MEROPAN XRN PEARLS
B		x	%	BEZAKTIV HE-MATRIX
C_1	(10 % von)	20.0 – 80.0	g/l	Glauber's salt (add within 10 min)
C_2	(30 % von)	20.0 – 80.0	g/l	Glauber's salt (add within 10 min)
C_3	(60 % von)	20.0 – 80.0	g/l	Glauber's salt (add within 10 min)
D		5.0	g/l	Sodium carbonate
		1.0 – 2.5	ml/l	Caustic soda 38 °Bé
				Mixture within 30 minutes by linear dosing
E		1.0	g/l	COTOBLANC SEL

SALT- UND ALKALI REQUIREMENTS FOR BEZAKTIV HE-MATRIX DYES

For unmercerised cotton

% Dyes	Salt g/l	Sodium carbonate g/l	Caustic soda 38 °Bé ml/l
< 0.5 %	20 – 30	5	0.5 – 0.8
0.5 – 1.0 %	30 – 40	5	0.8 – 1.0
1.0 – 2.0 %	40 – 50	5	1.0 – 1.5
2.0 – 3.0 %	50 – 60	5	1.5 – 2.0
3.0 – 4.0 %	60 – 80	5	2.0 – 2.5

For mercerised cotton and viscose

% Dyes	Salt g/l	Sodium carbonate g/l	Caustic soda 38 °Bé ml/l
< 0.5 %	15 – 20	10 – 15	–
0.5 – 1.0 %	20 – 30	15 – 20	–
1.0 – 2.0 %	30 – 40	5	0.5 – 1.0
2.0 – 3.0 %	40 – 50	5	1.0 – 1.5
3.0 – 4.0 %	40 – 50	5	1.5 – 2.0

For dyeings with sodium carbonate only as fixing alkali

% Dyes	Sodium carbonate g/l	
	Unmercerised cotton	Mercerised cotton and viscose
< 0.5 %	5 – 10	3 – 5
0.5 – 1.0 %	10 – 12	5 – 10
1.0 – 2.0 %	12 – 15	10 – 12
2.0 – 3.0 %	15 – 20	12 – 15
3.0 – 4.0 %	20 – 25	15 – 20

Conversion table for caustic soda solution:
(Calculation basis is caustic soda solution 38 °Bé)

NaOH 38 °Bé	=	NaOH 32.5 %	=	Factor 1.0
NaOH 50 °Bé	=	NaOH 50.1 %	=	Factor 0.57
NaOH	=	NaOH 100 %	=	Factor 0.44

Conversion factor to determine the alkali requirements depending on the liquor ratio:

Liquor ratio	Factor
1:5	1.30
1:10	1.00
1:15	0.80
1:20	0.65

These data are supplied to the best of our knowledge. They provide information on the properties of our products, but they are not binding and without guarantee.

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BEZAKTIV HE-MATRIX
Dyes

A Advanced

Improved and adapted ranges for versatile and economical use, which meet high requirements.

CO merc.

Solubility in g/l	neutral	25 °C
Light **DIN EN ISO 105-B02**		2/1 SD 1/1 SD 1/6 SD 1/25 SD
Washing 60 °C **DIN EN ISO 105-C06/C2S**		CC CO PA
Water **DIN EN ISO 105-E01**		CC CO PA
Perspiration **DIN EN ISO 105-E04**	acid	CC CO PA
	alkaline	CC CO PA
Peroxide bleaching **DIN EN ISO 105-N02**		CC CO CV
Chlorine washing **DIN EN ISO 105-C06/D3S**		CC
Chlorinated water **DIN EN ISO 105-E03**	20 ppm	CC

Member of
ETAD
Ecological and Toxological Association of Dyes and Organic Pigments Manufactures

Yellow HE-MATRIX 0.38 % 2.30 %	Red HE-MATRIX 0.37 % 2.20 %	Navy HE-MATRIX 2.40 % 4.80 %
80	100	80
– 5 4-5 3-4	– 4 3-4 3	4 3-4 3 –
5 4-5 4-5	4-5 4-5 5	4-5 4-5 4-5
5 5 5	4-5 4-5 5	4-5 4 5
5 5 5	4-5 4-5 4-5	4-5 4-5 5
5 5 5	4-5 4-5 4-5	4 4-5 5
4-5 3-4 4-5	4 4 4-5	4 4 5
2-3	4	3-4
4-5	4-5	4

Data about fastness properties:
The fastness properties indicated in the shade card were determined in 1/1 standard depth on bleached, unmercerised cotton. BEZAKTIV Navy HE-MATRIX as an exception was determined in 2/1 standard depth.