



DR. PETRY
TEXTILE AUXILIARIES

PRINTING





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Pigment printing





Products for pigment printing

- binder
- crosslinker
- softener
- thickener
- antifoam
- pigments

**Classical recipe for clothing according to Oeko Tex
Standard 100 for adults (≤ 70 ppm CH₂O)**

PERICOAT VA 110

PERICOAT CROSSLINKER MV

PERISOFT SE or PERIPRINT SOFT

PERIPRINT TN/PF

PERIFOAM NSI NEW

Pigment



PERICOAT VA 110

- self-crosslinking copolymer of vinyl acetate and ethylene
- soft handle
- no yellowing
- very good fastness properties



PERICOAT CROSSLINKER MV

- melamine based crosslinker
- contains formaldehyde
- only for Oeko Tex Class II, III



PERIPRINT SOFT

- special softener for polymer films
- based on silicone plus “plasticizer”
- more flexible polymer films



PERIPRINT TN/PF

- synthetic thickener

PERIFOAM NSI NEW

- paraffin oil defoamer

Recipe:

PERICOAT VA 110	g/kg	120 – 200
PERIFOAM NSI NEW	g/kg	3
urea	g/kg	20
PERISOFT SE or PERIPRINT SOFT	g/kg	20 – 50
PERICOAT CROSSLINKER MV	g/kg	20 – 30
pigment	g/kg	x
PERIPRINT TN/PF	g/kg	20 – 25
water	g	y
	g	1000

Fastness properties:



Printed fabric

- 20 % PERICOAT VA 110
- 3 % PERICOAT CROSSLINKER MV
- 6.5 % black pigment



dry



wet

Fastness to rubbing
according to
DIN EN ISO 105-x-12



Recipe for Oeko Tex Standard 100 for baby and new born ($\leq 16\text{ppm CH}_2\text{O}$)

PERICOAT VA 110

PERIFOAM NSI NEW

PERISOFT SE or PERIPRINT SOFT

PERICOAT CROSSLINKER NF or AZ/L

PERIPRINT TN/PF

Pigment



PERICOAT CROSSLINKER NF

- blocked polyurethane/isocyanate
- deblocking temperature ≥ 140 °C
- totally free of formaldehyde



PERICOAT CROSSLINKER AZ/L

- unblocked aziridine crosslinker
- totally free of formaldehyde
- pot life 24 hours



Total formaldehyde-free recipe

PERICOAT AC 224 or

PERICOAT AC 211

PERIFOAM NSI NEW

PERISOFT SE or PERIPRINT SOFT

PERICOAT CROSSLINKER NF or

PERICOAT CROSSLINKER AZ/L

PERIPRINT TN/PF

Pigment



PERICOAT AC 224

PERICOAT AC 211

- very soft and flexible
- high pigment carrying capacity
- good durability in washing
- crosslinking at low temperature



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Printing with natural thickeners



Natural thickeners



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- alginate
- guar gum
- tamarind
- starch ether



- polysaccharides
- distinct swelling capacity
- dispersed in water they are forming stable colloidal systems



PERIGUM A (alginate)

PERIGUM G (guar gum)

PERIGUM T ... (tamarind)

PERIGUM S ... (starch ether)



- depolymerisation leads from high viscous (high molecular) thickeners to middle or low viscous thickeners
- due to depolymerisation higher quantities of thickeners are required

stock paste:

high molecular thickener:	2 – 4 %
middle molecular thickener:	4 – 8 %
low molecular thickener:	8 – 12 %



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Printing with reactive dyes



Printing of cotton with reactive dyes



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Recipe:

PERIGUM A ... (stock thickener, 8 %)	g/kg	700
Sodium bicarbonate	g/kg	20 – 35
PERISTAL OX	g/kg	13
Urea	g/kg	100 – 200
Reactive dye	g/kg	x
Balance (water/stock thickener)	g/kg	y
	g	1000



- only alginate as a natural thickener can be used
- dyestuff is sprinkled into the paste followed by high-speed stirring
- for fixing the dyestuff alkali is necessary. Sodium bicarbonat is normally used
- fixation:
 - saturated steam: 5 – 10 min at 100 – 103 °C
 - superheated steam: 3 – 5 min at 140 – 160 °C
 - hot air: 3 – 5 min at 150 °C
1 min at 190 °C

Printing of cotton with reactive dyes



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Recipe:

PERIGUM A ... (stock thickener, 8 %)	g/kg	400
Sodium bicarbonate	g/kg	20 – 35
PERISTAL OX	g/kg	13
Urea	g/kg	100 – 200
PERIPRINT TN/R	g/kg	20
Reactive dye	g/kg	x
Balance (water/stock thickener)	g/kg	y
	g	1000

Printing of cotton with reactive dyes



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Recipe:

Urea	g/kg	100 – 200
Sodium bicarbonate	g/kg	20 – 35
PERISTAL OX	g/kg	13
PERIPRINT TN/R	g/kg	45 – 60
Reactive dye	g/kg	x
water	g/kg	y
	g	1000

Washing-off:

- rinse cold
- rinse hot (80 – 90 °C)
- soaping with 3 g/l PERLAVIN SRD at the boiling point
- rinse warm
- rinse cold
- neutralise



White discharge printing



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PERIGUM T/9F (stock thickener 8 %)	g/kg	550
PERISTAL MC/P	g/kg	100
Glycerol	g/kg	20
Urea	g/kg	100
Balance (water/stock thickener)	g/kg	350
	g	1000

Saturated steam conditions:

10 min at 100 – 103 °C

Dry curing:

6 min. 160 °C



White discharge printing



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PERISTAL MC/P	g/kg	100
Glycerol	g/kg	20
Urea	g/kg	100
PERIPRINT TN/R	g/kg	50 – 70
water	g/kg	x
	g	1000

Saturated steam conditions:

10 min at 100 – 103 °C

Dry curing:

6 min. 160 °C



White discharge printing



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Washing off

- cold rinse
- warm rinse 40 – 60 °C 2 ml/l H₂O₂
- cold rinse
- warm rinse 60 – 70 °C
- cold rinse

White discharge printing



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saturated steam
102 °C, 10 min



150 °C, 5 min

White discharge printing of cotton



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without
washing



washed off

hot air fixation

saturated steam

White discharge printing



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Recipe:	water	g/l	x
	Urea	g/l	100
	Glycerol	g/l	40
	PERISTAL MC/P	g/l	100
	PERICOAT AC 224	g/l	150
	Solution of diammonium phosphate (25 %)	g/l	20
	PERICOLOR WHITE P/MFM	g/l	100
	PERISTAL TEA	g/l	3
	PERIPRINT TN/PF	g/l	50 – 60
		g	1 000

Drying and Curing: 6 min 160 °C

White discharge printing of cotton



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without
washing



washed off

without pigment

with white pigment



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Printing of polyester



Polyester printing with natural thickener



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Recipe:

PERIGUM T/9F (stock thickener 8 %)	g/kg	750
PERISTAL DC conc.	g/kg	pH 5 – 6
PERISTAL OX	g/kg	0 – 5
PERIGEN EC	g/kg	0 – 5
Disperse dye	g/kg	x
Balance (water or stock thickener)	g/kg	y
	g	1000

Fixation:

superheated steam 6 – 8 min at 180 – 165 °C

hot air 1 – 2 min at 210 – 180 °C



- guar gum or tamarind are normally used. Blends with starch ether or alginate are common to optimize levelness, dyestuff yield or washability
- depending on the disperse dyestuff, it can be sprinkled directly into the paste or pre-dispersed with water (40 °C)
- to prevent disperse dyes from reduction during fixation, an oxidizing agent like PERISTAL OX is recommended
- depending on the disperse dye and the fixation conditions, a fixation accelerator like PERIGEN EC can be added to increase the dye sorption

Fixation:

- superheated steam: 6 – 8 min at 165 – 180 °C
- hot air: 1 – 2 min at 180 – 210 °C





Washing off:

- rinse cold
- rinse warm
- reductive clearing at 50 – 70 °C with

PERISTAL MC liq. or RCV	g/l	2 – 5
NaOH 50 %	ml/l	1 – 2

- rinse warm
- rinse cold
- neutralise

Polyester printing with synthetic thickener



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Stock thickening:

PERIPRINT TN/PF water	g/kg	15 – 20
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Recipe:

Disperse dye	g/kg	x
Stock thickener	g/kg	800 – 900
Balance (water or stock thickener)	g/kg	y

Fixation:

superheated steam 6 – 8 min at 180 – 170 °C

hot air 60 – 90 sec at 200 – 180 °C

Discharge printing of polyester



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Dyeing:

Dischargeable dyes	g/l	x
PERIPRINT MIP	g/l	10 – 20
PERISTAL OX	g/l	10

Padding

Drying: 2 min at 100 °C

Discharge printing of polyester



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Discharge printing:

PERIGUM TA/9F (8 – 10 %) or PERIGUM G/E8 (8 – 12 %)	g/kg	600
PERIBLANC PES conc.	g/kg	0 – 10
PERIGEN ZMS	g/kg	100 – 200
Ammonium chloride	g/kg	20
Balance (water or stock thickener)	g/kg	y
	g	1000

Drying: 2 min at 100 °C

Steaming: superheated steam, 7 min at 175 °C

Printing of polyester with disperse dyes



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Washing off:

- rinse cold
- rinse warm
- reductive clearing at 50 – 70 °C with

PERISTAL MC liq. or RCV	g/l	2 – 5
NaOH 50 %	ml/l	1 – 2

- rinse warm
- rinse cold
- neutralise



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Printing of nylon



Printing of polyamide with acid or metal-complex dyes



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Recipe:

Acid / metal complex dye	g/kg	x
PERISOL BG	g/kg	20 – 50
Hot water	g/kg	y
PERIGUM G/E (stock thickener 8 %)	g/kg	600
Urea	g/kg	50
Ammonium sulphate (33 %)	g/kg	30 – 60
PERIFOAM NSI NEW	g/kg	0.5 – 2
	g	1000

Printing of polyamide with acid or metal-complex dyes



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- dyestuff must be pre-dissolved with PERISOL BG and hot water
- guar gum or tamarind are normally used. Blends with starch ether or alginate are common to optimize levelness, dyestuff yield or washability
- urea is primarily used as an auxiliary for the dyestuff fixation
- for fixing the dyestuff ammonium sulphate as acid donor is used
- fixation:
 - saturated steam: 20 – 30 min at 100 – 103 °C

Printing of polyamide with acid or metal-complex dyes



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washing off:

- rinse cold with 1 g/l PERLAVIN SRS
- soap at 30 – 40 °C with 2 g/l PERLAVIN SRS at pH 9.5 – 10.0 (at least for 5 min)
- soap at 40 – 50 °C with 2 g/l PERLAVIN SRS at pH 9.5 – 10.0 (at least for 5 min)
- rinse cold
- neutralise



Discharge printing of polyamide



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Recipe:

PERIGUM G/E (stock thicker 8 %)	g/kg	300
PERISOL BG	g/kg	40
PERICOLOR WHITE P/MFN	g/kg	70
Ammonium chloride	g/kg	40
PERIGEN ZMS	g/kg	200
Balance (water/stock thickener)	g	x
		1000

Steaming:

saturated steam, 10 – 20 min at 102 °C

Discharge printing of polyamide



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Washing off

cold rinse

warm rinse 40 – 60 °C 2 ml/l H₂O₂

cold rinse

warm rinse 60 – 70 °C

cold rinse

Discharge printing of polyamide



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without washing



washed off



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Effect printing



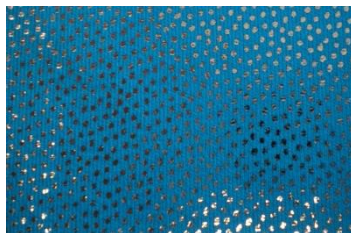
Compound for laminating hot stamping foils on textiles

Recipe:

PERICOAT FL	g/kg	985 – 995
PERIPRINT TN/PF	g/kg	5 – 15

Drying: 110 – 120 °C

Laminating: 160 – 180 °C
with heated calendar or ironing press



Reflecting Prints



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PERICOAT FLEX



without direct
light



reflecting
effects with light



Print with cationizer

PERIGUM G/SD 205 (2 % stock thickener)	900 g/kg
PERFIXAN F 5000	100 g/kg

Drying: 3 min 100 °C

Fixing: 2 min 160 °C



Dyeing

0.5 % Acid dyes (Norasol Red 2B)

20 g/l NaCl

30 min 80 °C

Rinse



Dye fixing, softening

40 g/l PERFIXAN AMZ

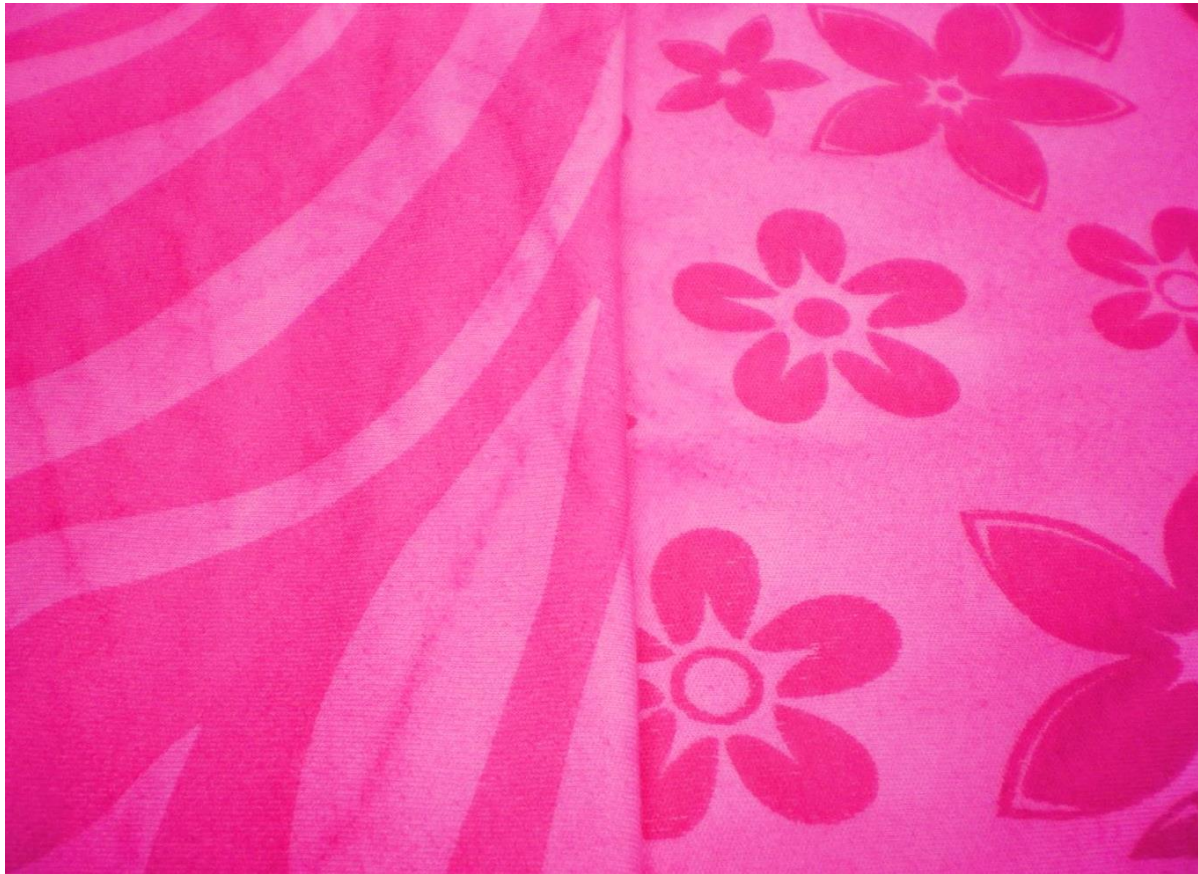
40 g/l PERISOFT NANO

Drying

Effect Prints



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Effect Prints



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The above indications are based on the latest state of our knowledge. Due to different operational conditions and requirements these are guidelines only. A legally binding assurance cannot be drawn from our indications. Our technical staff will always be at your disposal to support you in testing our auxiliaries and to answer further technical questions.

04/2016