

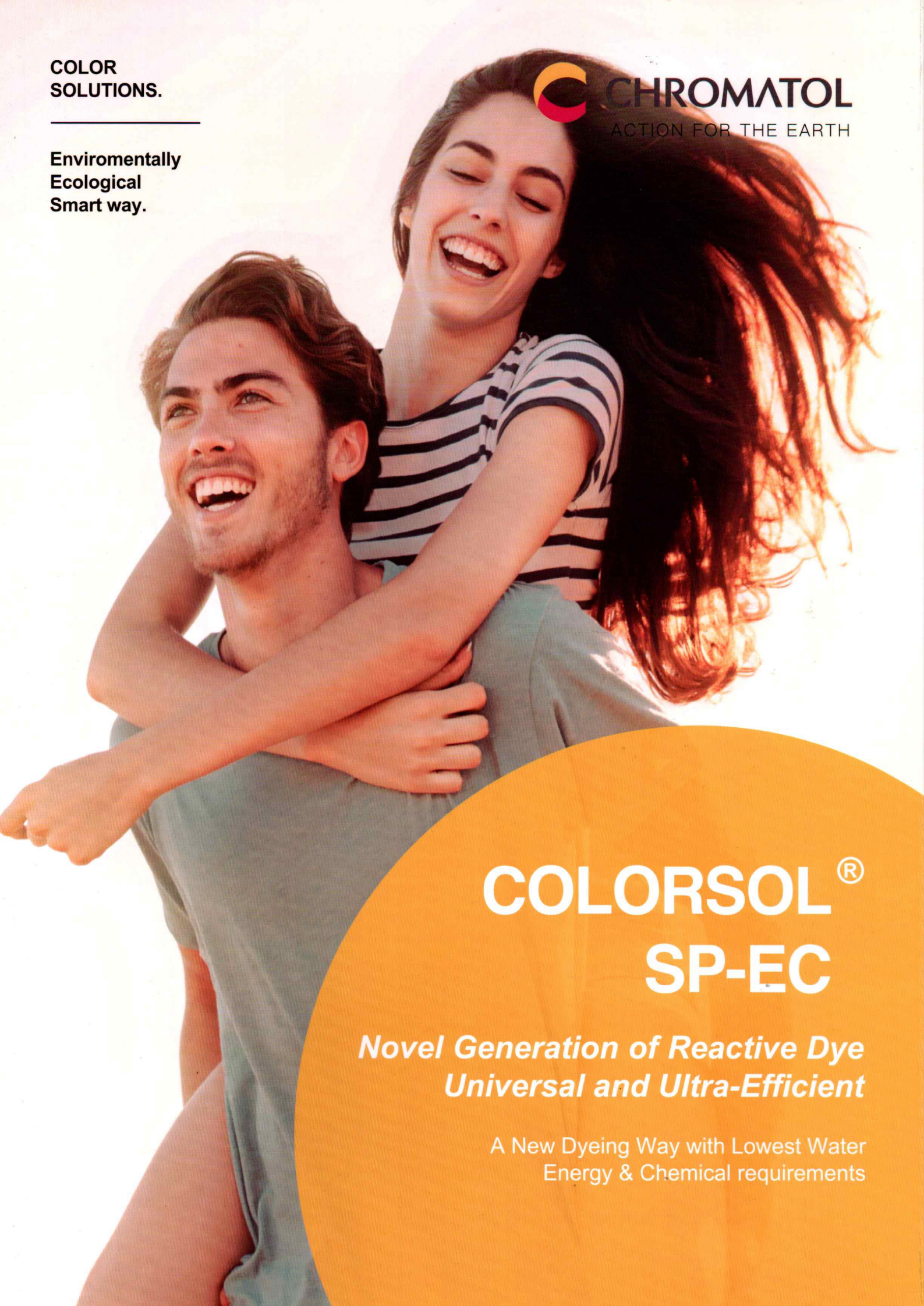
COLOR
SOLUTIONS.

Enviromentally
Ecological
Smart way.



CHROMATOL

ACTION FOR THE EARTH



COLORSOL[®] SP-EC

*Novel Generation of Reactive Dye
Universal and Ultra-Efficient*

A New Dyeing Way with Lowest Water
Energy & Chemical requirements

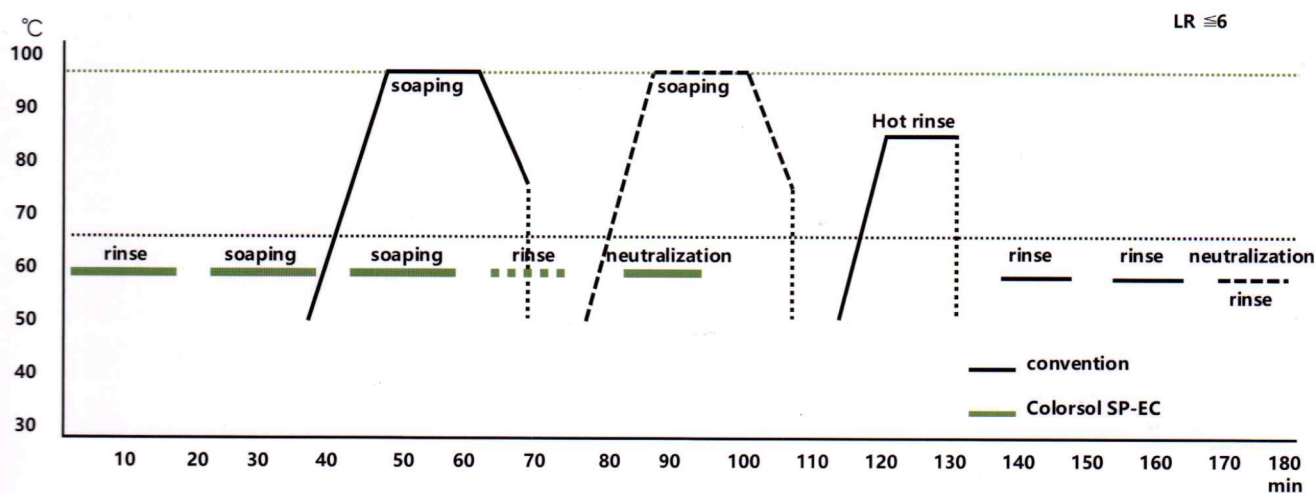
Product Properties and Advantages

- Reactive dyes with a revolutionary structure, meeting international regulations for restricted substances (especially PCA)
- The un-fixed & hydrolyzed dyes are easily removed and suitable for low-temperature (40-60%) soaping
- The unique reactive groups ensure that the dye has high dyeing build up, excellent exhaustion & fixation rate
- High dye compatibility and excellent dyeing performance ensures reproducibility of dyeing
- Excellent overall fastness, meet modern multiple washing requirements
- Chlorine, oxidative, bleach and light fastness exceeds that of traditional dye varieties
- Energy, CO2 emission, water and steam saving approximately 50%, increasing productivity 25%-30%
- Suitable for exhaust dyeing , continuous & Cold pad Batch dyeing process

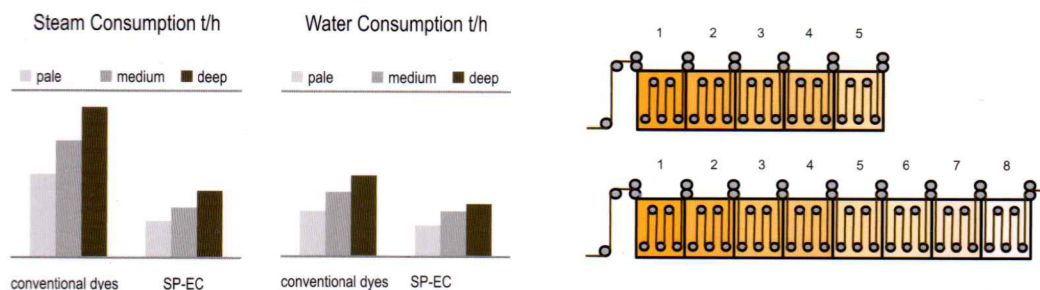
Dischargeability		+++		+++	+++	+++	-	+++	-	-	-	+	++	-	+++	-	-	
Nitrogen oxides damage ISO 105 G01	1 cycle CH	5	5	4-5	5	4-5	4	4-5	4	4-5	3-4	4	4-5	4-5	4-5	4-5	4-5	
	3 cycle CH	5	5	4-5	4-5	4-5	4	4-5	4-5	4-5	4/4	4-5	5	5	5	5	5	
M&S C10A 1/1SD	CH	4-5	5	4	4-5	4-5	4	4-5	4-5	4-5	4-5	5	4	4	5	4-5	4-5	
ISO 105-C09 1/1SD	CH	4-5	5	4	4-5	4-5	4	4-5	4-5	4-5	4-5	5	4	4	5	4-5	4-5	
Chlorination ISO 105-E03 20ppm	CH	3	5	3-4	4-5	3	3-4	3	3-4	3	3	3-4	4	4	4	4-5	4-5	
Perspiration acid /alkali 1/1SD ISO105 E04	CH	4-5/4-5	4-5/4-5	4/3-4	4-5/4-5	5/5	4-5/4-5	4-5/4-5	4-5/4-5	4-5/4-5	4/4	4-5/4-5	4-5/4-5	4-5/4-5	5/5	4-5/4-5	4-5/4-5	
	CO	4-5/4-5	5/5	5/4-5	5/4-5	5/5	4-5/4-5	4-5/4-5	5/4-5	4-5/4-5	4-5/4-5	4-5/4-5	5/5	4/4	4-5/4-5	5/4-5	5/5	
Water 1/1SD ISO 105-E01	CH	5	5	4-5	4-5	5	5	4-5	4-5	4-5	4-5	5	4-5	4-5	5	5	5	
	CO	5	5	4-5	5	5	5	4-5	4-5	4-5	4	4-5	5	4-5	5	5	5	
Peroxide Washing 1/1SD ISO 105-C06 EZS 95°C	CH	4-5	5	4	5	4-5	5	4	4-5	4-5	5	4	4-5	4	4-5	4-5	4-5	
	CO	4-5	4-5	5	4-5	4-5	4-5	4-5	4-5	4-5	3-4	4-5	4-5	4-5	5	5	4-5	
Multiple Washing 1/1SD ISO 105-C06 C2S 5X	CH	5	5	5	4-5	5	4-5	5	5	4-5	4-5	5	4-5	4-5	5	5	5	
	CO	5	5	5	4-5	5	4-5	4-5	4-5	5	4	4-5	4-5	4-5	5	5	5	
Washing 1/1SD ISO 105-C06 C2S 60°C	CH	5	5	5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4	4-5	4-5	4-5	4-5	
	CO	5	5	5	4-5	4-5	5	4-5	4-5	4	5	4-5	4-5	4-5	5	5	4-5	
Light fastness	AATCC 16E	40AFU	4-5	5	4-5	4-5	4-5	4	4	5	5	4-5	4	4	4-5	4-5	4-5	
		20AFU	5	5	4-5	5	4-5	4-5	4-5	4-5	5	5	4-5	4-5	5	5	5	
	ISO 105 B02	2/1	6	7-8	4-5	5	6	5	5	5	7	6	7	5-6	4	3-4	5BK	5BK
		1/1	5-6	7	4	4	5-6	4-5	4-5	4-5	5	5-6	4-5	4-5	3-4	3-4	-	-
1/1 SD depth g/l (PDPS bleached mercerized)		10.0	16.0	6.0	30	24.0	8.0	6.6	16.8	27.2	20.0	18.2	9.2	6.0	8.0	11.2	50	
1/1 SD depth % (Exhaust 1:10 bleached)		1.5	2.0	1.18	4.9	3.00	1.56	1.22	2.52	3.00	2.76	2.88	1.68	1.10	1.20	2.00	6.00	
Dyeing on Bleached 100% cotton (2.0% except Navy 4.0% Black 6.0%)																		
Colorsol®		Bril. Yellow SP-EC	Yellow SP-EC	Orange SP-EC	Bril. Red SP-EC	Red SPL	Red SP-EC	Rubine SP-EC	Red SPB-EC	Bordeaux SP-EC	Bril. Blue SP-EC	Blue SPL	Blue SP-EC	Dark Blue SP-EC	Navy SPN-EC	Navy SPR-EC	Black SP-EC	
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		
																		

Innovative Colorsol SP-EC provides Superior Performance at Low Temperature Soaping Energy, chemicals Saving & Water Reduction

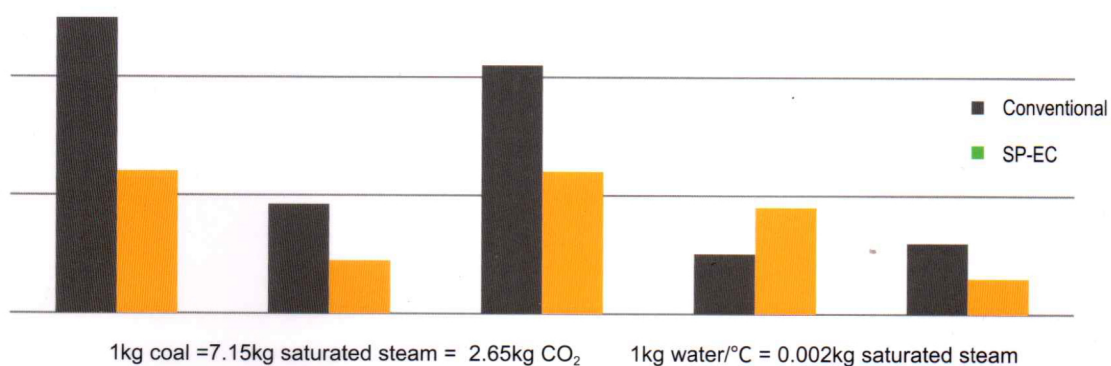
Exhaust process soaping comparing Colorsol SP-EC and conventional dyes



Continuous washing off comparing Colorsol SP-EC and conventional dyes

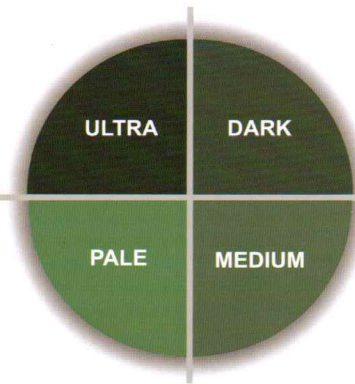


Exhaust process consumption/100kg Fabric saving



Positioning

Orange SP-EC
Rubine SP-EC
Red SP-EC
Black SP-EC



Orange SP-EC
Rubine SP-EC
Red SP-EC
Navy SPN-EC/SPR-EC

Yellow SP-EC
Bordeaux SP-EC/Red SPL
Blue SPL

Yellow SP-EC
Rubine SP-EC
Blue SP-EC

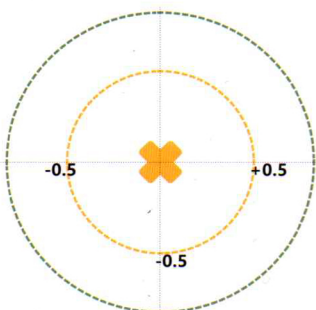
**Pale shade with high light and PLF Fastness
with excellent leveling property and minimal photochromy**

Yellow SP EC	0.093%	0.060%
Bordeaux SP EC	0.073%	0.051%
Blue SPL	0.023%	0.057%
Reactive Yellow*EC-2R	0.076%	0.053%
Reactive Red *EC-2BL	0.098%	0.075%
Reactive Blue *EC-R	0.038%	0.093%
Reactive Yellow SE	0.058%	0.043%
Reactive light Red SE	0.045%	0.028%
Reactive light Blue SE	0.052%	0.110%

Color	Brown			Grey		
Fastness	ISO105-B02	ISO 105-B07 Acid/Alkaline	M&S C10A	ISO105-B02	ISO 105-B07 Acid/Alkaline	M&S C10A
Colorsol SP-EC	6	4/4	5	5-6	4/4	5
Reactive SE	5-6	4/3-4	4-5	5-6	4/3-4	4-5
Reactive *EC	5-6	4/3-4	4-5	5-6	4/3-4	4-5

Step	30°C *10min	30°C *20min	40°C	50°C	60°C	60°C *25min	60°C *35min	60°C *65min
Exhaust								
fixation								

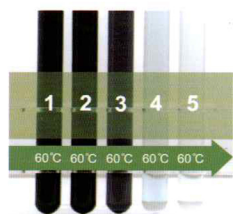
Yellow SP-EC	0.1%
Bordeaux SP-EC	0.1%
Blue SPL	0.1%



+5°C	+10%salt	+10% soda ash	1:8	+15min	-10%water
-5°C	-10%salt	-10% soda ash	1:12	-15min	+10%water

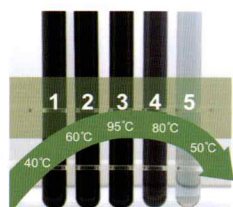
Colorsol SP-EC Easy Washing Off With LOW TEMPERATURE SOAPING

**Colorsol Black
SP-EC 6.0%**



- 1 Rinse at 60 °C * 10 min
- 2 Soaping at 60 °C * 10 min with 1-2 g/l CHRO Wash LTD
- 3 Soaping at 60 °C * 10 min with 1-2 g/l CHRO Wash LTD
- 4 Rinse at 60 °C * 10 min
- 5 Rinse at 60 °C * 10 min

**Convention Black
WNN 6.0%**



- 1 Rinse at 40-50 °C * 10 min
- 2 Rinsing at 80 °C * 10 min with 1-2 g/l CHRO Wash LTD
- 3 Soaping at 98 °C * 10 min with 1-2 g/l CHRO Wash LTD
- 4 Rinse at 80 °C * 10 min
- 5 Rinse at 50 °C * 10 min

Colorsol SP-EC low temperature soaping bulk by Exhaust process

Aftertreatment(LR 8:1)						Immerse fastness	
rinse	Soaping 60°C	Soaping 60°C	Neutralization	Original	4		
Washing fastness ISO 105 C06 C2S						Rubbing fastness	
CA	CO	PA	PES	PAN	WO		
4-5	4-5	4-5	4-5	4-5	4-5	Dry 4-5	Wet 4

Recipe 1:

1.20% Colorsol Yellow SP-EC
4.60% Colorsol Red SPB-EC

80.g/L Glauber's Salt
2.0g/L Soda ash
1.5g/L caustic soda
Liquor Ratio 8:1

Aftertreatment(LR 8:1)						Immerse fastness	
rinse	rinse	Soaping 60°C	Soaping 60°C	Neutralization	Original	4	
Washing fastness ISO 105 C06 C2S						Rubbing fastness	
CA	CO	PA	PES	PAN	WO		
4-5	4-5	4-5	4-5	4-5	4-5	Dry 4-5	Wet 4

Recipe 2:

0.40% Colorsol Yellow SP-EC
0.50% Colorsol Red SP-EC
6.00% Colorsol Black SP-EC

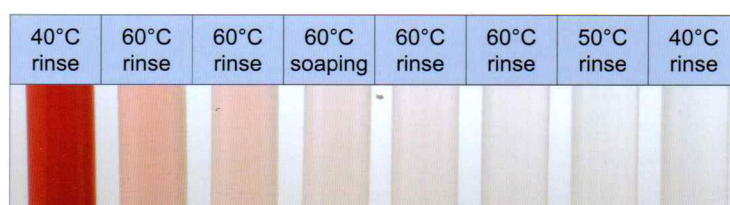
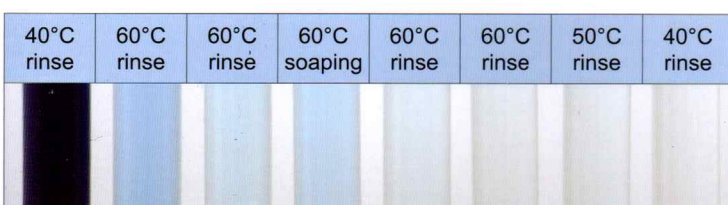
80.g/L Glauber's Salt
2.0g/L Soda ash
2.0g/L caustic soda
Liquor Ratio 8:1

Colorsol SP-EC PDPS Bulk

8.00 g/l Colorsol Orange SP-EC
22.0 g/l Colorsol Dark Blue SP-EC

28.0 g/l Colorsol Red SP-EC
2.00 g/l Colorsol Dark Blue SP-EC

8 boxes open-width rinse residual liquor



Colorsol SP-EC with Excellent compatibility & Robustness Property in Continuous and Cold Pad Batch

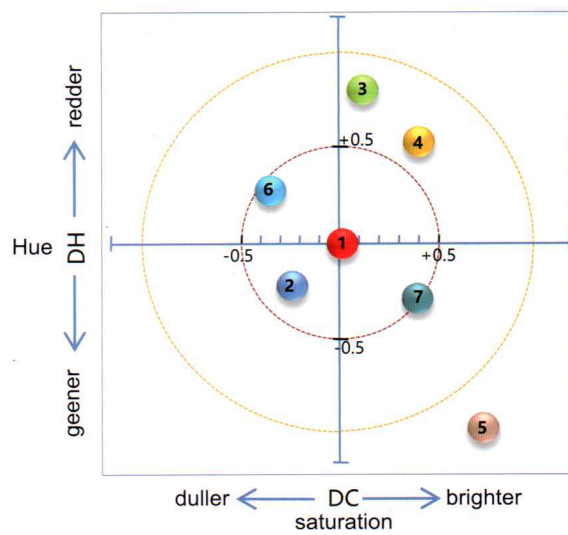
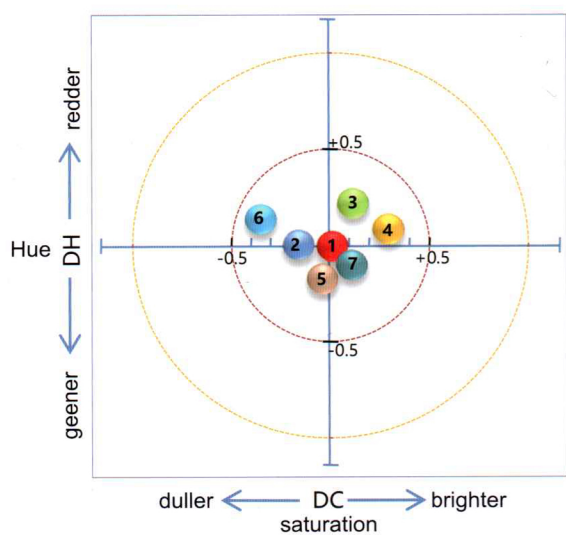
Low Sensitivity to dyeing parameter in PDPS

Colorsol SP-EC

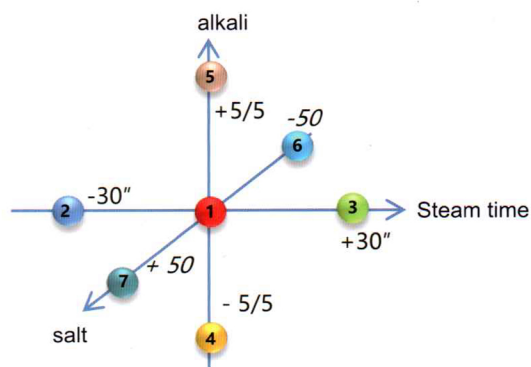
Yellow SP-EC	10g/l
Red SP-EC	10g/l
Navy SPN-EC	10g/l
Total	30g/l

Conventional dyes

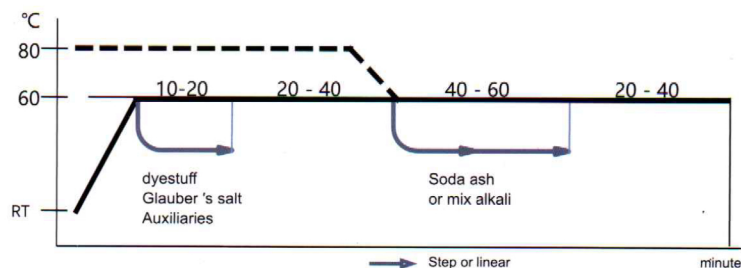
C.I Yellow 145	33.0g/l
C.I Red 195	27.5g/l
C.I Blue 222	23.0g/l
Total	83.5g/l



1	Standard condition
	Glauber's salt 200g/l
	Soda ash 20g/l
	Caustic soda 36 °Bé 10ml/l
	Saturated steam 102 °C 60 sec



Exhaust



Amount of salt and soda ash

LR ≤6:1	%	≤ 0.5	0.5	1	2	3	4	≥5
Salt	g/l	20	30	40	50	60	70	80
Soda ash	g/l	14	16	18	20	20	20	20

LRR ≤8:1	%	≤ 0.5	0.5	1	2	3	4	≥5
Salt	g/l	20	30	40	50	60	70	80
Soda ash	g/l	10	12	14	16	18	20	20

Amount of salt and mix alkali

LR ≤6:1	%	≤ 0.5	0.5	1	2	3	4	≥5
Salt	g/l	20	30	40	50	60	70	80
Soda ash	g/l	10	10	5	5	5	5	5
NaOH 36 °Bé	ml/l	0.5	1.0	2.0	2.5	3.0	3.5	4.0

LR ≤6:1	%	≤ 0.5	0.5	1	2	3	4	≥5
Salt	g/l	20	30	40	50	60	70	80
Soda ash	g/l	10	10	5	5	5	5	5
NaOH 36 °Bé	ml/l	-	0.75	1.25	1.5	2.0	2.25	3.0

Washing Off rinse 60°C *10 min → soaping 60°C *10min 1-2g/l Chro Wash LTD → soaping 60°C *10min 1-2g/l Chro Wash LTD → Rinse 60°C *10min neutralization PH=6-7

Cold Pad Batch



padding

Winding and dwelling Washing off

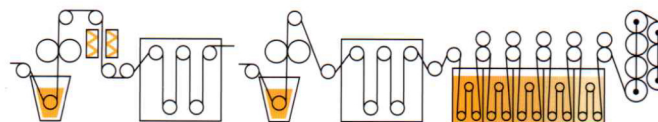
padding		
x	g/l	Colorsol SP-EC
2 - 4	ml/l	Chro Penetration NF

Padding temperature	20 – 30°C
Liquor Pick up	60 – 80 %
Fixation time	12 – 24h

concentration	g/l	< 10	20	30	40	50	≥ 60
Caustic soda 36 °Bé	ml/l	12	14	16	18	20	22
Sodium silicate 38 °Bé	ml/l				50		

concentration	g/l	< 10	20	30	40	50	≥ 60
Caustic soda 36 °Bé	ml/l	4	6	8	10	12	14
Soda ash	g/l				20		

Pad-Dry-Pad-Steam



padding IR pre-dry dry padding chemicals steam Washing off

	X	g/l	Colorsol SP-EC
Padding the dyes	1-2	g/l	CHRO Penetration NF
	1-3	g/l	CHRO Anti-Reduction F Liq.
	5-10	g/l	CHRO Migration MI
Padding temperature	20-30 °C		
Liquor Pick up	60-80 %		
IR Pre-dry	to a residual moisture content of 30 - 50 %		
Dry	120 -140 °C, cool the fabric		

Padding Chemicals	15	ml/l	NaOH 36 °Bé
	20	g/l	Soda ash
	200-250	g/l	Glauber's Salt
Padding temperature	20-30 °C		
Liquor Pick up	70-80 %		
Steaming temperature	Saturated steam 100 - 102 °C		
Steaming time	30-60s		

OUTSTANDING BENEFITS

SUPPORTING ECOLOGICAL SOLUTION

SAVING OPPORTUNITIES

Energy, CO₂ emission, water and steam saving approximately 50%,
increasing productivity 25%-30%

Iteam	Energy saving	CO ₂ Emission	Water saving	Steam saving
Potential savings	50%	50%	50%	50%

A groundbreaking advancement has been made in the dyeing of cellulosic fibers and their blends.



Supports of sustainability and innovation

Introducing the *Spiyit* hangtags assurance program. Utilizing **COLORSOL® SP-EC** reactive dyes, these hangtags are designed to assure consumers that their garments are crafted with innovative and sustainable dye technologies.



Spiyit
Empowered by
CHROMATOL.

ENVIRONMENTALLY
HANGTAG

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The Buyer and the Final End User shall ensure that intended use of goods will not infringe any third party's intellectual property rights.
Data and results are based on controlled or lab work and must be confirmed by Buyer and Final End User by lasting for intended conditions of use.
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