

凯乐玛(上海)科技有限公司  
CHROMA (Shanghai)Chem-Tech Co., Ltd.

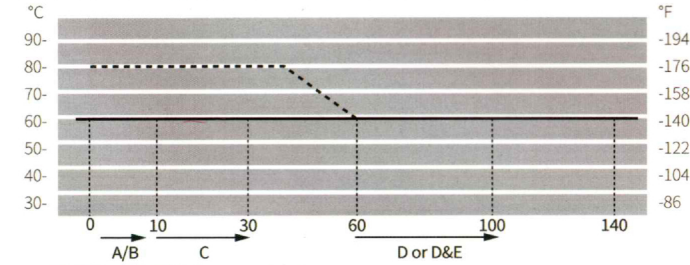


COLORSOL®凯乐素® DS  
活性染料浸染  
Reactive dyes Exhaust dyeing

|                                                                                      |                              |                   | DS                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|--------------------------------------------------------------------------------------|------------------------------|-------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| COLORSOL®                                                                            |                              |                   | Yellow DS                                                                         | Orange DS                                                                         | Deep Orange DS                                                                    | Red DS                                                                            | Deep Red DS                                                                       | Deep Red Brown DS                                                                  | Deep Brown DS                                                                       | Bri. Blue DS-G                                                                      | Dark Blue DS-GL                                                                     | Dark Blue DS                                                                        | Navy DS-G                                                                           | Deep Navy DS                                                                        |
| Dyeing on Bleached 100% cotton<br>( tinctorial pattern 2.0% , Navy 4.0% Black 6.0% ) |                              |                   |  |  |  |  |  |  |  |  |  |  |  |  |
| 1/1 SD g/kg dyestuff ( PDPS process, bleached, merc. CO )                            |                              |                   | 16.0                                                                              | 6.4                                                                               | 5.6                                                                               | 17.3                                                                              | 8.0                                                                               | 11.5                                                                               | 6.3                                                                                 | 16.0                                                                                | 16.0                                                                                | 9.3                                                                                 | 8.3                                                                                 | 6.3                                                                                 |
| 1/1 SD % dyestuff ( LR 10:1, exhaust, process, bleached CO )                         |                              |                   | 2.00                                                                              | 0.94                                                                              | 0.84                                                                              | 2.16                                                                              | 1.00                                                                              | 2.06                                                                               | 0.84                                                                                | 2.16                                                                                | 2.00                                                                                | 1.20                                                                                | 1.20                                                                                | 0.92                                                                                |
| Suitability for process                                                              |                              | Exhaust           | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   |
|                                                                                      |                              | CPB               | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   |
|                                                                                      |                              | PDPS              | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   |
|                                                                                      |                              | Pad-dry-thermofix | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   | ■                                                                                   |
| Light Fastness                                                                       | ISO 105-B02 (Xenon)          | 1/1 SD            | 4-5                                                                               | 4                                                                                 | 4                                                                                 | 4                                                                                 | 5                                                                                 | 4                                                                                  | 4-5                                                                                 | 5-6                                                                                 | 5                                                                                   | 4-5                                                                                 | -                                                                                   | -                                                                                   |
|                                                                                      |                              | 2/1 SD            | 5                                                                                 | 4-5                                                                               | 4-5                                                                               | 5                                                                                 | 5-6                                                                               | 4-5                                                                                | 5                                                                                   | 6                                                                                   | 5-6                                                                                 | 5-6                                                                                 | 4NL                                                                                 | 4-5NL                                                                               |
| Light Fastness                                                                       | AATCC 16E (Xenon, in 1/1 SD) | 20AFU             | 5                                                                                 | 4-5                                                                               | 4-5                                                                               | 5                                                                                 | 5                                                                                 | 4-5                                                                                | 4-5                                                                                 | 5                                                                                   | 5                                                                                   | 3-4                                                                                 | 5NL                                                                                 | 4-5NL                                                                               |
|                                                                                      |                              | 40AFU             | 4-5                                                                               | 4                                                                                 | 4                                                                                 | 4-5                                                                               | 4-5                                                                               | 4                                                                                  | 4                                                                                   | 5                                                                                   | 4                                                                                   | 3                                                                                   | 4-5NL                                                                               | 4NL                                                                                 |
| Washing Fastness                                                                     | ISO 105-C06 C1S 60°C 1/1 SD  | CH                | 5                                                                                 | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 |
|                                                                                      |                              | CO                | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 4-5                                                                                 | 5                                                                                   | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 5                                                                                   |
| Multiple Washing Fastness<br>ISO 105-C06 C1S, 5X 60°C 1/1 SD                         |                              | CH                | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 4                                                                                 | 4-5                                                                                | 4-5                                                                                 | 4                                                                                   | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 |
|                                                                                      |                              | CO                | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 5                                                                                 | 5                                                                                 | 4                                                                                  | 4                                                                                   | 5                                                                                   | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 |
| Peroxide Washing Fastness<br>ISO 105-C06 E2S 95°C 1/1 SD                             |                              | CH                | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 4-5                                                                                 | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 |
|                                                                                      |                              | CO                | 4-5                                                                               | 5                                                                                 | 5                                                                                 | 5                                                                                 | 4                                                                                 | 4                                                                                  | 4                                                                                   | 4                                                                                   | 5                                                                                   | 4                                                                                   | 4-5                                                                                 | 4                                                                                   |
| Water Fastness<br>ISO 105-E01 1/1 SD                                                 |                              | CH                | 4-5                                                                               | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 4-5                                                                                | 4-5                                                                                 | 4                                                                                   | 5                                                                                   | 5                                                                                   | 5                                                                                   | 5                                                                                   |
|                                                                                      |                              | CO                | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 4-5                                                                                 | 5                                                                                   | 5                                                                                   | 5                                                                                   | 5                                                                                   | 4-5                                                                                 |
| Perspiration Fastness<br>ISO 105-E04 Acid/Alkaline 1/1 SD                            |                              | CH                | 4-5/5                                                                             | 5/5                                                                               | 5/5                                                                               | 5/5                                                                               | 5/5                                                                               | 5/5                                                                                | 5/5                                                                                 | 4/4                                                                                 | 5/5                                                                                 | 5/5                                                                                 | 5/5                                                                                 | 4-5/4-5                                                                             |
|                                                                                      |                              | CO                | 5/5                                                                               | 4-5/4-5                                                                           | 4-5/4-5                                                                           | 5/5                                                                               | 4-5/5                                                                             | 4-5/4-5                                                                            | 4-5/4-5                                                                             | 4/4                                                                                 | 5/5                                                                                 | 5/5                                                                                 | 5/5                                                                                 | 4-5/4-5                                                                             |
| Fastness to Chlorinated Water                                                        | ISO 105-E03 , 20mg/l 1/1 SD  | CH                | 2-3                                                                               | 3RDu                                                                              | 4                                                                                 | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 4                                                                                   | 2-3                                                                                 | 3-4                                                                                 | 2-3                                                                                 | 4-5                                                                                 | 3                                                                                   |
| Simulation of multiple wash with bleach activator at 60°C                            | ISO 105-C09                  | CH                | 5                                                                                 | 4                                                                                 | 5                                                                                 | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 4                                                                                   | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 3R                                                                                  |
| Oxidative Bleach Damage<br>M&S C10A 1/1 SD                                           |                              | CH                | 5                                                                                 | 4                                                                                 | 5                                                                                 | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 4                                                                                   | 5                                                                                   | 4-5                                                                                 | 5                                                                                   | 3R                                                                                  |
| Nitrogen Oxides Fastness<br>ISO 105-G01 1/1 SD                                       |                              | 1cycle CH         | 5                                                                                 | 4-5                                                                               | 5                                                                                 | 5                                                                                 | 5                                                                                 | 5                                                                                  | 5                                                                                   | 4                                                                                   | 4-5                                                                                 | 5                                                                                   | 4-5                                                                                 | 4-5                                                                                 |
|                                                                                      |                              | 3cycle CH         | 5                                                                                 | 4-5                                                                               | 4-5                                                                               | 4-5                                                                               | 5                                                                                 | 5                                                                                  | 5                                                                                   | 3-4                                                                                 | 3-4                                                                                 | 4-5                                                                                 | 4                                                                                   | 4                                                                                   |
| Dischargeability                                                                     | (white discharge 1, potash)  |                   | ++                                                                                | +++                                                                               | +++                                                                               | -                                                                                 | +++                                                                               | ++                                                                                 | ++                                                                                  | -                                                                                   | +                                                                                   | +                                                                                   | ++                                                                                  | +++                                                                                 |



60°C染色方法(中深色)/method for medium to dark shades



→分步或自动加料/dispensed or in portions

A 凯乐助剂/Auxiliaries    B染料/dyes    C盐/salt  
D 纯碱/soda ash    E 稀烧碱/NaOH diluted

盐碱表/Table of Salt & Alkali

● 纯碱法/Soda ash

| 浴比小于等于6:1 (超小浴比) /Liquor ratio 6:1 and below (Ultra Short Liquor ratio) |     |      |     |    |    |    |    |    |
|-------------------------------------------------------------------------|-----|------|-----|----|----|----|----|----|
| 染料/dye                                                                  | %   | <0.5 | 0.5 | 1  | 2  | 3  | 4  | >5 |
| 盐/salt                                                                  | g/l | 20   | 30  | 40 | 50 | 60 | 70 | 80 |
| 纯碱/soda ash                                                             | g/l | 14   | 16  | 18 | 20 | 20 | 20 | 20 |

| 浴比7:1 /Liquor ratio 7:1 |     |      |     |    |    |    |    |    |
|-------------------------|-----|------|-----|----|----|----|----|----|
| 染料/dye                  | %   | <0.5 | 0.5 | 1  | 2  | 3  | 4  | >5 |
| 盐/salt                  | g/l | 20   | 30  | 40 | 50 | 60 | 70 | 80 |
| 纯碱/soda ash             | g/l | 10   | 12  | 14 | 16 | 18 | 20 | 20 |

| 浴比等于大于8:1 /Liquor ratio 8:1 and above |     |      |     |    |    |    |    |    |
|---------------------------------------|-----|------|-----|----|----|----|----|----|
| 染料/dye                                | %   | <0.5 | 0.5 | 1  | 2  | 3  | 4  | >5 |
| 盐/salt                                | g/l | 30   | 40  | 50 | 60 | 70 | 80 | 90 |
| 纯碱/soda ash                           | g/l | 8    | 10  | 12 | 14 | 16 | 18 | 18 |

● 混合碱法/Mixed alkali

| 浴比小于等于6:1 (超小浴比) /Liquor ratio 6:1 and below (Ultra Short Liquor ratio) |      |      |     |     |     |     |     |     |
|-------------------------------------------------------------------------|------|------|-----|-----|-----|-----|-----|-----|
| 染料/dye                                                                  | %    | <0.5 | 0.5 | 1   | 2   | 3   | 4   | >5  |
| 盐/salt                                                                  | g/l  | 20   | 30  | 40  | 50  | 60  | 70  | 80  |
| 纯碱/soda ash                                                             | g/l  | 10   | 10  | 5   | 5   | 5   | 5   | 5   |
| 烧碱*/NaOH                                                                | ml/l | 0.5  | 1.0 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |

| 浴比7:1 /Liquor ratio 7:1 |      |      |      |      |     |     |      |     |
|-------------------------|------|------|------|------|-----|-----|------|-----|
| 染料/dye                  | %    | <0.5 | 0.5  | 1    | 2   | 3   | 4    | >5  |
| 盐/salt                  | g/l  | 20   | 30   | 40   | 50  | 60  | 70   | 80  |
| 纯碱/soda ash             | g/l  | 10   | 5    | 5    | 5   | 5   | 5    | 5   |
| 烧碱*/NaOH                | ml/l | -    | 0.75 | 1.25 | 1.5 | 2.0 | 2.25 | 3.0 |

| 浴比等于大于8:1 /Liquor ratio 8:1 and above |      |      |     |     |      |     |     |     |
|---------------------------------------|------|------|-----|-----|------|-----|-----|-----|
| 染料/dye                                | %    | <0.5 | 0.5 | 1   | 2    | 3   | 4   | >5  |
| 盐/salt                                | g/l  | 30   | 40  | 50  | 60   | 70  | 80  | 90  |
| 纯碱/soda ash                           | g/l  | 8    | 5   | 5   | 5    | 5   | 5   | 5   |
| 烧碱*/NaOH                              | ml/l | -    | 0.5 | 1.0 | 1.25 | 1.5 | 2.0 | 2.5 |

\*烧碱36°Bé/66°TW

清洗

-50°C/122°F清洗10分钟。

-50°C/122°F中和处理10分钟。用0.2-0.5毫升/升凯乐中和酸 PC, pH5.5-6.0

-95°C/203°F皂洗10分钟。用1-2克/升凯乐净MPB

-50°C/122°F清洗10分钟

-冷水清洗10分钟

-正常后处理或柔软

如有必要,我们建议对于特深色增加一次95°C/203°F清洗

Washing off

-10 min rinse at 50°C/122°F.

-10 min neutralize at 50°C/122°F with 0.2-0.5ml/L CHRO Acid PC, pH5.5-6

-10 min soap at 95°C/203°Fwith 1-2g/l CHRO Wash MPB

-10 min rinse at 50°C/122°F

-10 min rinse cold

-Soften as usual or aftertreatment

if necessary for very dark shades we recommend an additional rinse at 95°C/203°F

说明 Disclaimer:

本色卡所列数据系本公司实验室精心试验所得,仅供参考!本公司不承担任何由此造成的风险。各工厂因所采用工艺条件、染色基材、水、化学品等因素的不同,各项指标会有所差异,请工厂先行试验后再决定大生产使用。  
The testing data in this pattern card is obtained from our company Lab. We will not overtake any risk caused by this. Every factory has difference in index data because of different process, dyeing material, water, chemicals etc, as such factors, Our data is just for your reference. Your lab experiment is highly Suggested before you initiate mass-production.



**COLORSOL<sup>®</sup> DEEP DS**

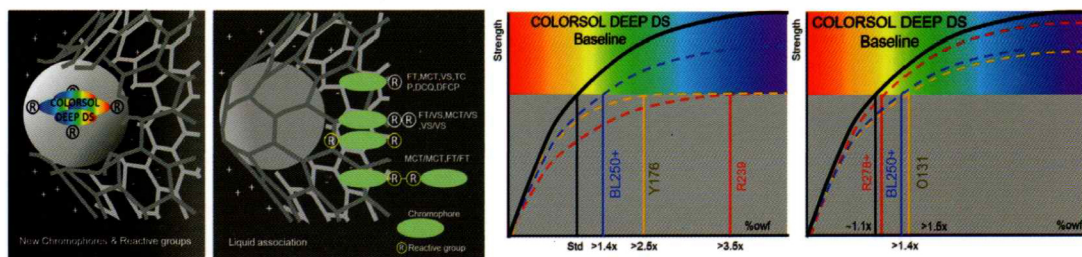
The Most Economical & Effective Solution for Extreme Deep Shades



## Product Properties and Advantages

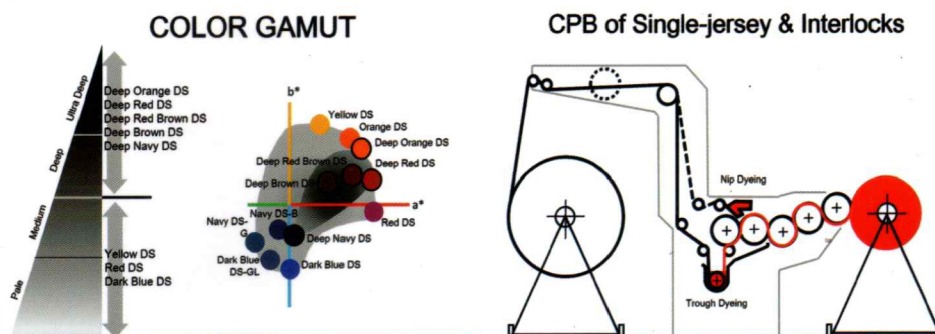
Normal reactive dye exhibits weaker build up around 2SD, it causes a big cost rising and various problems such as fastness, process control and waste water treatment etc, COLORSOL DEEP DS series effectively solve it through molecule engineering, their new chemical structures perform as following to overcome disadvantages which majority of reactive dye has

- a) Bigger molecule's potential is much weaker and meets less repulsion of cellulose during the stage of exhaustion, with the combined effect of Van der Waals' force, they can break through the liquid association and reach fiber far more easier than others. the primary exhaustion is 20-30% stronger.
- b) New dyestuff is 3D designed with three or more chromophores in a compact molecules and multiple reactive groups, compatible with micro structure of fiber, it's superior in tintorial strength and durability, as a result, higher exhaustion rate and comparative top fixation rate get the depth where normal dyes are unattainable



## COLORSOL DEEP DS' Other Advantages

- 1)、 High strength, High fixation rate and Better Solubility result in cost saving, easy washing-off and waste water treatment reducing
- 2)、 High Compatibility & Levellness & diffusion & Reproducibility give a Top Right-First-Time and 40% more increasement in productivity without any additional investment
- 3)、 Suitable for short liquor ratio dyeing, lower dye and salt
- 4)、 Applicable for CPB dyeing of single jersey and interlock, energy & cost saving, waster water reducing
- 5)、 Qualified overall colorfastness performance in the modern market
- 6)、 Optimize the brand image of retailers and create more opportunity of Win-Win
- 7)、 The DEEP DS products together with supplementary dyes in DS series can cover a wider spectrum



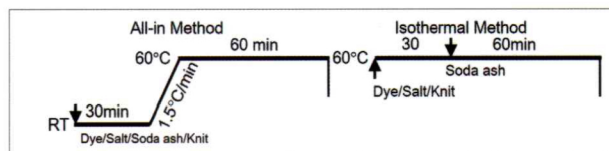
| COLORSOL®                                    |        | Deep Orange DS<br>3.0 %                                                           | Deep Red DS<br>3.0 %                                                              | Deep Red Brown DS<br>3.0 %                                                         | Deep Brown DS<br>3.0 %                                                              | Deep Navy DS<br>3.0 %                                                               |
|----------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                              |        |  |  |  |  |  |
| Solubility                                   | g/L RT | >100                                                                              | >100                                                                              | >100                                                                               | >100                                                                                | >100                                                                                |
| Light fastness ISO105-B02                    | CH     | 4-5                                                                               | 4-5                                                                               | 4-5                                                                                | 4                                                                                   | 4                                                                                   |
| Washing fastness ISO105-C06C1S 60°C*30min    | CH     | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 5                                                                                   |
|                                              | CO     | 4-5                                                                               | 4                                                                                 | 4                                                                                  | 4-5                                                                                 | 4-5                                                                                 |
| Peroxide Laundering ISO105-C06E2S 95°C*30min | CH     | 4-5                                                                               | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 4-5                                                                                 |
|                                              | CO     | 4                                                                                 | 4                                                                                 | 4                                                                                  | 4-5                                                                                 | 4                                                                                   |
| Water fastness ISO105-E01                    | CO     | 4-5                                                                               | 4-5                                                                               | 4-5                                                                                | 4-5                                                                                 | 4-5                                                                                 |
| Chlorinated water ISO105E03,20ppm            | CH     | 4                                                                                 | 4-5                                                                               | 4-5                                                                                | 4                                                                                   | 3G                                                                                  |
| Perspiration ISO105-E04 Acidic/alkaline      | CH     | 5/5                                                                               | 5/5                                                                               | 5/5                                                                                | 4-5/4-5                                                                             | 5/5                                                                                 |
|                                              | CO     | 4-5/4-5                                                                           | 4-5/4-5                                                                           | 4-5/4-5                                                                            | 4-5/4                                                                               | 4-5/4-5                                                                             |
| Rubbing fastness ISO105X12 dry/wet           | CO     | 4-5/3-4                                                                           | 4-5/3-4                                                                           | 4-5/3-4                                                                            | 4-5/3-4                                                                             | 4-5/3-4                                                                             |
| Oxidative bleach damage M&S C10A             | CH     | 5                                                                                 | 4-5                                                                               | 4-5                                                                                | 5                                                                                   | 3-4R                                                                                |
| Nitrogen oxide ISO105-G01, 3cycles           | CH     | 5                                                                                 | 5                                                                                 | 5                                                                                  | 5                                                                                   | 4                                                                                   |

\*Rating above bases on the dyeing at 2SD

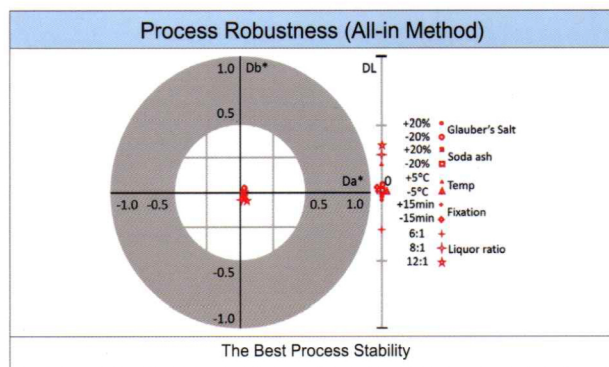
## COLORSOL DEEP DS in Exhaustion

Pantone 19-1018 TPG Ganache on Cotton Knit

| Dyeing Bath, LR10:1 |       |                |        |
|---------------------|-------|----------------|--------|
| Deep Orange DS      | 0.8 % | Glauber's salt | 80 g/L |
| Deep Brown DS       | 2.4 % |                |        |
| Deep Navy DS        | 0.8 % | Soda ash       | 18 g/L |



| Step Dyeing (Isothermal Method)                                                     |    |    |                       |    |    |    |    |    |  |
|-------------------------------------------------------------------------------------|----|----|-----------------------|----|----|----|----|----|--|
| Neutral                                                                             |    |    | After dosing soda ash |    |    |    |    |    |  |
| 5min                                                                                | 15 | 30 | 35                    | 40 | 50 | 60 | 75 | 90 |  |
| Exhaustion                                                                          |    |    |                       |    |    |    |    |    |  |
|  |    |    |                       |    |    |    |    |    |  |
| Fixation                                                                            |    |    |                       |    |    |    |    |    |  |
| Better On-tone Exhaustion and Fixation                                              |    |    |                       |    |    |    |    |    |  |



| 10min Washing-off Efficiency                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Rinsing 50°C                                                                        | Rinsing 50°C                                                                        | Soaping 95°C*                                                                       | Rinsing 50°C                                                                        | Rinsing RT                                                                          |
|  |  |  |  |  |
| Easier Washing off performance                                                      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

\*Detergent CHRO WASH MPB 1g/L

| Rubbing ISO105X12                                                                   |                                                                                     | Washing fastness ISO105-C06C1S, 60°C*30min                                          |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | Water fastness ISO105-E01                                                            |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dry                                                                                 | Wet                                                                                 | Ch                                                                                  | CA                                                                                  | CO                                                                                  | PA                                                                                  | PE                                                                                  | PAN                                                                                 | WO                                                                                  | Ch                                                                                   | CA                                                                                    | CO                                                                                    | PA                                                                                    | PE                                                                                    | PAN                                                                                   | WO                                                                                    |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5                                                                                   | 3-4                                                                                 | 5                                                                                   | 4-5                                                                                 | 4-5                                                                                 | 4-5                                                                                 | 4-5                                                                                 | 4-5                                                                                 | 4-5                                                                                 | 5                                                                                    | 4-5                                                                                   | 4-5                                                                                   | 4-5                                                                                   | 4-5                                                                                   | 4-5                                                                                   | 4-5                                                                                   |



## COLORSOL DEEP DS in Cold-Pad-Batch

Pantone 19-0812 TPG Turkish Coffee on Cotton woven

| Dye liquor        |      |     |
|-------------------|------|-----|
| Deep Orange DS    | 1.5  | g/L |
| Deep Red Brown DS | 1.67 | g/L |
| Deep Navy DS      | 13.3 | g/L |

| Silicate free method |        |
|----------------------|--------|
| Soda ash             | 20 g/L |
| 36° Be'NaOH          | 7 ml/L |

Padding → Batching at 20-30°C for 20Hrs → Washing off

| Dyeing Bath Stability after mixing , 20°C |        |        |       |       |
|-------------------------------------------|--------|--------|-------|-------|
| 0min as standard                          | 2min   | 5min   | 10min | 15min |
| Strength                                  | 100.05 | 100.01 | 99.77 | 98.65 |
| CMCDE                                     | 0.06   | 0.09   | 0.17  | 0.22  |
| Good Stability and Easier Control         |        |        |       |       |

| 1min Wicking Test                                                                  |            |            |
|------------------------------------------------------------------------------------|------------|------------|
| Dyeing bath                                                                        | 50%Diluted | 10%Diluted |
|  |            |            |
| Good compatibility & Little tailing                                                |            |            |

| Washing-off Efficiency                                                            |              |              |               |              |              |            |
|-----------------------------------------------------------------------------------|--------------|--------------|---------------|--------------|--------------|------------|
| Rinsing 40°C                                                                      | Rinsing 60°C | Rinsing 80°C | Soaping 95°C* | Rinsing 80°C | Rinsing 60°C | Rinsing RT |
|  |              |              |               |              |              |            |
| Easier Washing off performance                                                    |              |              |               |              |              |            |

| Dispersibility of Dye liquor Stock                                                 |       |       |       |        |
|------------------------------------------------------------------------------------|-------|-------|-------|--------|
| 0min                                                                               | 10min | 30min | 60min | 120min |
|  |       |       |       |        |
| Stable without precipitation                                                       |       |       |       |        |

\*Detergent CHRO WASH MPB 1g/L

| Rubbing ISO105X12 |     | Washing fastness ISO105-C06C1S , 60°C*30min |     |    |     |     |     |     |  | Water fastness ISO105-E01 |     |     |     |     |     |     |
|-------------------|-----|---------------------------------------------|-----|----|-----|-----|-----|-----|--|---------------------------|-----|-----|-----|-----|-----|-----|
| Dry               | Wet | Ch                                          | CA  | CO | PA  | PE  | PAN | WO  |  | Ch                        | CA  | CO  | PA  | PE  | PAN | WO  |
|                   |     |                                             |     |    |     |     |     |     |  |                           |     |     |     |     |     |     |
| 4-5               | 4   | 5                                           | 4-5 | 4  | 4-5 | 4-5 | 4-5 | 4-5 |  | 5                         | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |

## COLORSOL DEEP DS in Pad-Dry-Pad-Steam

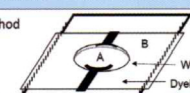
Pantone 19-4008 TPG Meteorite on Cotton woven

| Dye liquor     |    |     |
|----------------|----|-----|
| Deep Orange DS | 10 | g/L |
| Deep Brown DS  | 10 | g/L |
| Deep Navy DS   | 10 | g/L |

| Alkali      |         |
|-------------|---------|
| Common salt | 250 g/L |
| Soda ash    | 20 g/L  |
| 36° Be'NaOH | 15 ml/L |

Padding dye liquor → IR predrying → Hot air 120°C → Padding alkali → Saturated steam for 60-90sec → Washing off

| 1min Wicking Test                                                                   |            |            |
|-------------------------------------------------------------------------------------|------------|------------|
| Dyeing bath                                                                         | 50%Diluted | 10%Diluted |
|  |            |            |
| Good compatibility & Little tailing                                                 |            |            |

| Migration Test AATCC 140 mod                                                                      |                                                                                      |                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Options of Method                                                                                 |                                                                                      |                                                                                                                                                                                             |
| A:  RT°C       |  | <br>Grey Scale Rating<br>5 = no migration<br>4 = slight<br>3 = medium<br>2 = severe<br>1 = very severe |
| B:  100°C*7min |                                                                                      |                                                                                                                                                                                             |
| (A)GS 3, (B)GS2-3 , medium migration                                                              |                                                                                      |                                                                                                                                                                                             |

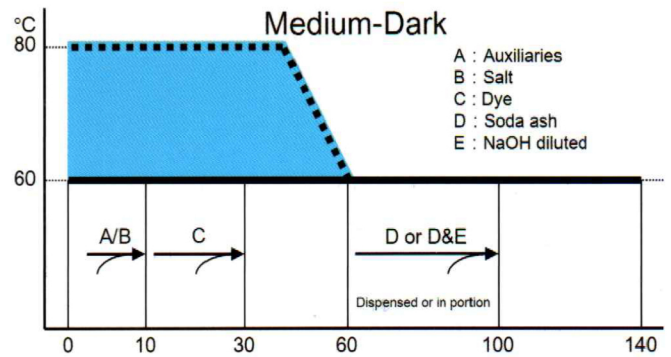
| Washing-off Efficiency                                                              |              |              |               |              |              |            |
|-------------------------------------------------------------------------------------|--------------|--------------|---------------|--------------|--------------|------------|
| Rinsing 40°C                                                                        | Rinsing 60°C | Rinsing 80°C | Soaping 95°C* | Rinsing 80°C | Rinsing 60°C | Rinsing RT |
|  |              |              |               |              |              |            |
| Easier Washing off performance                                                      |              |              |               |              |              |            |

| Process Robustness         |            |                  |                 |
|----------------------------|------------|------------------|-----------------|
| NaCl ± 20%                 | NaOH ± 20% | Steaming ± 20sec | Soaping pH12    |
| (+)Strength: 100.89        | 103.58     | 106.74           | 99.68           |
| (+)CMCDE: 0.13             | 0.37       | 0.50             | 0.14            |
| (-)Strength: 100.75        | 102.90     | 103.77           | Standard as pH7 |
| (-)CMCDE: 0.11             | 0.31       | 0.38             |                 |
| Superior Process Stability |            |                  |                 |

\*Detergent CHRO WASH MPB 1g/L

| Rubbing ISO105X12 |     | Washing fastness ISO105-C06C1S , 60°C*30min |     |     |     |     |     |     |  | Water fastness ISO105-E01 |     |     |     |     |     |     |
|-------------------|-----|---------------------------------------------|-----|-----|-----|-----|-----|-----|--|---------------------------|-----|-----|-----|-----|-----|-----|
| Dry               | Wet | Ch                                          | CA  | CO  | PA  | PE  | PAN | WO  |  | Ch                        | CA  | CO  | PA  | PE  | PAN | WO  |
|                   |     |                                             |     |     |     |     |     |     |  |                           |     |     |     |     |     |     |
| 4-5               | 3-4 | 5                                           | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |  | 5                         | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |

## Exhaustion Process



### Soda Ash Method

| 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 |

| LR7:1    | %   | <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 |

| LR≥8:1   | %   | <0.5 | 0.5 | 1  | 2  | 3  | 4  | >5 |
|----------|-----|------|-----|----|----|----|----|----|
| Salt     | g/L | 30   | 40  | 50 | 60 | 70 | 80 | 90 |
| Soda ash | g/L | 8    | 10  | 12 | 14 | 16 | 18 | 18 |

### Mixed Alkali Method

| 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    | ml/l | 0.5  | 1.0 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |

| LR7:1    | %    | <0.5 | 0.5  | 1    | 2   | 3   | 4    | >5  |
|----------|------|------|------|------|-----|-----|------|-----|
| Salt     | g/L  | 20   | 30   | 40   | 50  | 60  | 70   | 80  |
| Soda ash | g/L  | 10   | 5    | 5    | 5   | 5   | 5    | 5   |
| *NaOH    | ml/l | --   | 0.75 | 1.25 | 1.5 | 2.0 | 2.25 | 3.0 |

| LR≥8:1   | %    | <0.5 | 0.5 | 1   | 2    | 3   | 4   | >5  |
|----------|------|------|-----|-----|------|-----|-----|-----|
| Salt     | g/L  | 30   | 40  | 50  | 60   | 70  | 80  | 90  |
| Soda ash | g/L  | 8    | 5   | 5   | 5    | 5   | 5   | 5   |
| *NaOH    | ml/l | --   | 0.5 | 1.0 | 1.25 | 1.5 | 2.0 | 2.5 |

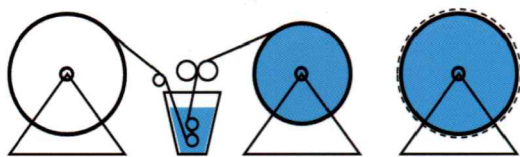
\*NaOH 36° Be / 66° TW

## Washing off

Rinsing 50°C10min → Neutralizing 50°C10min , pH5.5-6.0 → ※ Soaping 95°C10min , 1-2g/l CHRO WASH MPB  
→ Rinsing 50°C10min → Rinsing cold 10min

※ An Additional Soaping Is Recommended For Very Deep Shades

## Cold-Pad-Batch Process



Padding → Batching 20-30°C12-24 hrs. → Washing Off

### Dye liquor

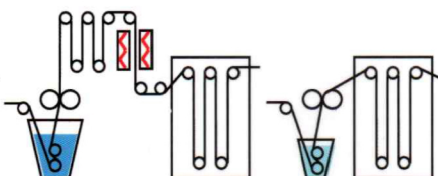
| X   | g/L | COLORSOL Deep DS |
|-----|-----|------------------|
| 2-4 | g/L | Wetting agent    |

### Alkali dosage

| Dyestuff       | g/L  | <10 | 20 | 30 | 40 | 50 | >60 |
|----------------|------|-----|----|----|----|----|-----|
| Soda ash       | g/L  | 20  |    |    |    |    |     |
| * Caustic soda | ml/l | 4   | 5  | 7  | 9  | 11 | 13  |

## Pad-Dry-Pad-Steam Process

Padding Dye Liquor → IR PreDrying → hot air 100-130°C  
→ Padding Chemicals → Saturated steam 60~90 sec.  
→ Washing Off



### Dye liquor , PU60-80%

| X    | g/L | COLORSOL Deep DS     |
|------|-----|----------------------|
| 2-4  | g/L | Wetting agent        |
| 5-10 | g/L | Anti-migration agent |
| 5-10 | g/L | Resist salt          |

### Chemicals , PU70-80%

|                |      |           |
|----------------|------|-----------|
| Common salt    | g/L  | 200 - 250 |
| Soda ash       | g/L  | 20        |
| * Caustic soda | ml/l | 15        |

\*NaOH 36° Be / 66° TW





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