

## CLAIROSPERSE DYES (Disperse)



**STRATEGIC INVESTORS LLP**

EYE FASCINATING COLORS

(Textiles Dyestuff & Auxiliaries Chemicals)



OEKO-TEX®  
CONFIDENCE IN TEXTILES  
ECO PASSPORT



## Introduction

Dyes manufactured and marketed by Strategic Investors LLP are exclusive range of Azo, Anthraquinone, Coumarine, Methine and Quinoline based Disperse Dyes, suitable for dyeing and printing materials made of polyester fiber and its blend.

Selected Clairosperse Dyes can also be applied on nylon and acetate materials.

Clairosperse Dyes are characterized by excellent dispersion and good all round fastness properties.

Clairosperse range includes disperse dyes having different degrees of sublimation fastness and hence dyer / printer has a wide choice of selection of dyes according to their requirements.

This catalogue contains comprehensive information on various application of dyes into several types of substrate (Fabric) and fastness properties that can be obtained in the depth of shade illustrated.

Clairosperse products illustrated in this booklet meet requirements of German Eco Laws.



## Classification of Clairosperse Dyes :

### **S** Indicates High Energy Dyes :

- High Sublimation fast dyes
- Suitable for Print, Pad, High temperature of high pressure steam fixation.
- Suitable for Thermosol dyeing.
- Suitable for yarn, fibre and fabric dyeing.

### **SE** Indicates Medium Energy Dyes :

- Good to moderate sublimation fastness
- Suitable for selective application on polyester & its blend.

### **E** Indicates Low Energy Dyes :

- Good leveling property.
- Low sublimation fast dyes.
- Suitable for piece dyeing of polyester / blend.

## Commercial form of Clairosperse Dyes :

Clairosperse Dyes are supplied in the form of powder only.

To minimize dusting, we give anti-dusting treatment to almost all dyes being produced by us, by the means of online blending along with anti-dusting treatment.

We provide low dusting and homogeneous quality of dyes to the customers.

## Dispersion of Clairosperse Dyes :

Clairosperse Dyes are slowly sprinkled in ten times of its weight of soft warm water ( $40^{\circ}$ - $50^{\circ}$ C) under slow stirring.

The dye dispersion should be sieved through fine cloth / fine sieve prior to application.



## 1.0 Application Method:

### 1.1 Exhaust Dyeing at 130°C (HTHP Condition) :

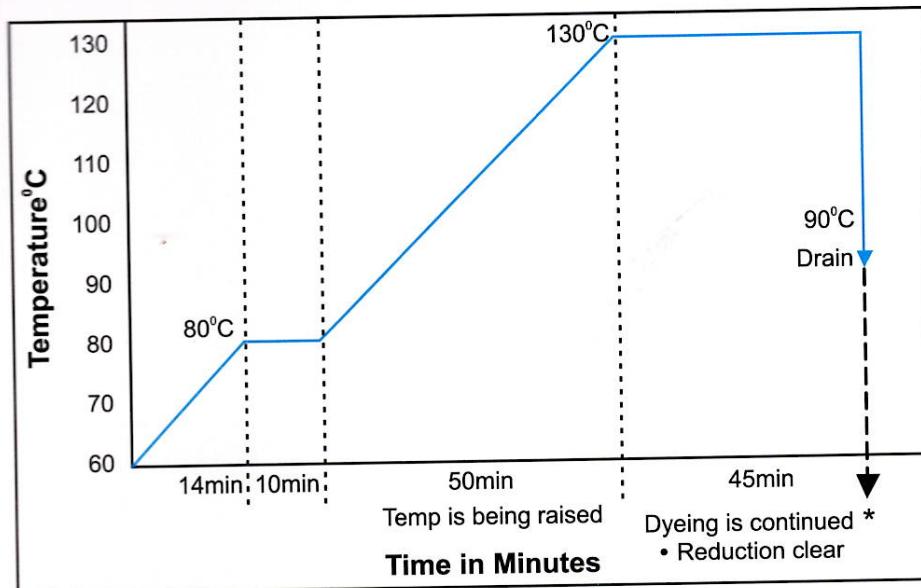
#### Dye bath addition :

X %	Clairospere Pre-Dispersed Dyes
1g/l	Dispersing Agent
0.5-1g/l	Leveling Agent
0.5 g/l	Water Softner
Y g/l	Acetic Acid for pH 4.5-5.0

#### Dyeing Parameters :

- Fabric to be dyed must be free from chemical, proper pre-treatment should be given and pH fabric should be 4.5 to 5.5
- M:L Ratio 1:10.
- pH 4.5 - 5.0.
- 60°C to 80°C @ 1.5°C/min [In 14 minutes].
- At 80°C hold time 10min
- 80°C to 130°C @ 1°C/min [In 50 minutes]
- Dyeing at 130°C for 20 - 60 minutes depending on depth of shade.
- Cool the dye bath upto 90°C @ 4°C/min [In 10 minutes].
- Drain the dye bath and dyed goods should be rinsed with hot water and reduction cleared as per procedure.

#### A. Normal Dyeing Cycle :





### Exhaust dying at 100°C (with Carrier):

#### Dye bath addition:

X %	Clairosperse Pre-Dispersed Dyes
1 g/l	Dispersing Agent
1-2 g/l	Carrier (Eco-friendly)
0.5 g/l	Water Softener
Y g/l	Acetic Acid for pH 4.5 - 5.0

#### Dyeing Parameters:

- Fabric to be dyed must be free from chemical, proper pre-treatment should be given and pH of fabric should be 4.5 to 5.5.
- M:L Ratio 1:10.
- pH 4.5 - 5.0
- 60°C to 100°C @ 1°C/min in 40 minutes.
- Dyeing at 100°C for 20 - 60 minutes depending on the depth of shade.
- Cool dye bath upto 90°C
- Drain the dye bath and dyed goods should be rinsed with hot water and reduction cleared as per procedure.

## 1.2

#### Thermosol Process:

Indosperse S class and selected SE class dyes are suitable for Thermosol application on polyester and blend.

#### Pad - Liquor recipe:

X %	Clairosperse Pre-Dispersed Dyes
2 g/l	Sodium Alginate / Anti migration Agent
2 g/l	Fixation Accelerator
0.5 g/l	Water Softener
Y g/l	Citric Acid for pH 4.5 - 5.0

#### Process Parameters:

- Fabric to be dyed must be free from chemical, proper pre-treatment should be given and pH of fabric should be 4.5 to 5.5
- Pick up 60 - 70%
- Padding pressure 2.5 - 3 kgs/cm<sup>2</sup>
- pH 4.5 - 5.0.



Pad the fabric as per above procedure at room temperature. Pass the padded fabric through infrared light pre-drier to residual moisture of 10 - 15% followed by drying the fabric in hot flue or float dryer.

Thermofix at 180 - 210°C for 30 to 60 seconds depending on the depth of shade and sublimation property of dye. Rinse with hot water and reduction clear as per procedure.

### **1.3 Printing :**

Clairospere S and SE class dyes are recommended for print application on polyester material and its blend.

#### **1.3.1 Direct Printing :**

Printing Recipe

X	%	Clairospere Pre-Dispersed Dyes
700	Parts	Stock Thickening of 8% Gum Paste
4-5	Parts	Fixation Accelerator
4-5	Parts	Perminol KBI
Y	Parts	Citric Acid for pH 4.5 - 5.0
250	Parts	Water
1000	Parts	

#### **1.3.2 Discharge Print:**

##### **1.3.2.1 White Discharge recipe:**

1-2	Parts	White R. Liquid
80	Parts	Safolite
95	Parts	Safoline
20	Parts	PEG 400
5	Parts	Perminol KBI
500	Parts	8% neutral Stock thickning
300	Parts	Water
1000	Parts	



### 1.3.2.2 Colour Discharge recipe

X	Parts	Clairospere Non Dischargeable Pre-dispersed Dyes
120	Parts	Safolite
20	Parts	PEG 400
5	Parts	Perminol KBI
5	Parts	Fixation Accelerator
5	Parts	Glycerine
500	Parts	Stock Thickening of 8% Gum Paste
300	Parts	Water
Y	Parts	Citric Acid for pH 4.5 - 5.0
1000	Parts	

After printing with any of the above process, the fabric is to be subjected to drying and print fixation

### 1.3.3 Print Fixation:

Printed / Padded fabric can be developed by any of the following procedure.

#### 1.3.3.1 High Temperature Steaming:

Clairospere "S" dyes are recommended for high temperature steaming at 165 - 170°C for 7-8 minutes, whereas Indosperse "SE" class dyes are recommended for high temperature steaming at 165°C (Max) for 7 - 8 minutes.

#### 1.3.3.2 Pressure Steaming:

Clairospere "S", "SE" and selected "E" Class dyes are suitable for development under pressure @30 PSI/30 min. Fixation accelerator is not required, if print is to be developed under pressure steaming.

After development rinse the goods and reduction clear as per procedure

### 1.4 Reduction Clearing:

The Material after Dyeing/Printing/Pad - Thermofix should be given reduction clearing treatment to remove unfixed dye/dye residue. It also increases brilliancy and improves fastness.

#### Reduction Clearing Recipe:

3 g/l	Caustic Soda
2 g/l	Sodium Hydro Sulphite
0.25 g/l	Anti-tinting Agent

Treat the Dyed / Printed / Padded goods at 70°C for 15 - 20 minutes, then rinse and neutralize with acetic acid, soaping followed by final rinsing with water.

**2.0 Fastness Properties:**

The fastness properties of Clairosperse Dyes are evaluated in accordance to ISO/AATCC. Test specimens are prepared with 100% polyester fabric dyes at 1/1 SD by standard procedure, reduction cleared and neutralized.

**2.1 Light (Xenon) Fastness test:****2.1.1 ATCC 16E (20AFU):**

Test specimens exposed to Xenon light for 20 hours / 40 hours.

Rating from 1 to 5 against AATCC grey scale for evaluating change in colour.

**2.1.2 ISO 105-B02 (20 Hours):**

As per procedure test specimen is exposed to Xenon light for 20 hours, along with blue wool light fastness standard (1 - 8).

Rating-1 to 8 against Blue wool standard.

**2.2 Sublimation Fastness Test (ISO 105P01) Dry heat for 30 seconds :**

- As per procedure test specimen is exposed to dry heat at 180°C and 210°C for 30 seconds.
- Rating 1 to 5 according to the grey scale, change of shade(COS) and staining on adjacent polyester(SOP).

**2.3 Washing Fastness Test(ISO - 105 - C03 1987):**

- As per procedure test specimen is treated with 5 gpl ECE soap without optical brightener and 2 gpl soda ash at 60°C for 30 minutes. M:L Ratio 1:50.
- Staining on PES, PA, Cotton & Wool (Multi Fiber) is assessed according to Grey scale (staining) Rating 1 to 5.

**2.4 Perspiration Test (ISO - 105 - E04 1989):**

As per procedure test specimen is treated under following bath for 30 minutes at RT. One specimen in alkaline bath and another specimen in acidic bath. M:L Ratio 1:50.

	<b>A-Alkaline</b>	<b>B-Acidic</b>
Histidine mono Hydrochloride	0.5 gms.	0.5 gms.
Sodium Chloride	5.0 gms.	5.0 gms.
Disodium Hydrogen Orthophosphate	2.5 gms.	2.5 gms.
Sodium Hydroxide for pH	8.0	-
Acetic acid for pH	-	5.5
Distilled Water	X ml.	X ml.
Final Volume	1000 ml.	1000 ml.



After that take out the specimens and remove extra water. The specimens are kept under Perspirometer for 4 hours at  $37 \pm 2^{\circ}\text{C}$ .

Take out the specimens and staining on PES, PA, Cotton & Wool(Multifibre) is assessed according to Grey Scale(Staining).

Rating 1 to 5.

#### **2.5 Rubbing Fastness Test (ISO - 105 - X12 : 1987):**

As per procedure test specimens are tested under Crock Meter (dry and wet). Staining on cotton fabrics assessed against Grey Scale (Staining).

Rating 1 to 5.

#### **2.6 Bleaching (Peroxide) Test (ISO 105 N02 1978):**

As per procedure test specimens are tested under following bath for 1 hour.

##### **Recipe.**

Hydrogen Peroxide (30%)	5 ml.
Sodium Silicate (26%)	5 ml.
Magnesium Chloride	0.1 gms.
Sodium Hydroxide(pH 10.5)	0.2 gms.
Temperature	$90 \pm 2^{\circ}\text{C}$
Final volume with water	100 ml.
Duration of treatment	1 Hour
M:L Ratio	1:30

The Degree of staining on PES, PA, Cotton, Wool [Multifiber] and alteration in colour is assessed according to Grey Scale (Staining).

Rating 1 to 5.

#### **2.7 Dry Cleaning Test ISO 105 D01 - 1987 (Per Chloro Ethylene):**

As per procedure a test specimen is treated under (Per chloro ethylene) Following bath for 30 minutes at  $30 \pm 2^{\circ}\text{C}$ .

- NID 10 ml.
- Distilled water 0.6 ml.
- Final volume 1000 ml. with per chloro ethylene.

Take out the test specimen and air dry at temperature not exceeding  $65^{\circ}\text{C}$ .

Change in colour and staining on PES is assessed against the Grey Scale (Change in colour & staining).

Rating 1 to 5.

**2.8 Decatising ( $110^{\circ}\text{C}$ ) Test (ISO 105 E10 1987):**

Test specimen is treated as per procedure and change of shade is assessed against Grey Scale. [Change in colour]

Rating - 1 to 5

**2.9 Carbonising ( $70\% \text{ H}_2\text{SO}_4$ ) Test (ISO 105 X 02):**

As per procedure a test specimen is treated under  $70\% \text{ H}_2\text{SO}_4$  at  $25 \pm 2^{\circ}\text{C}$  for 20 - 30 minutes. Remove the specimen , wash thoroughly with water, dry and assess against Grey Scale (Change in colour).

Rating 1 to 5.

**2.10 Migration Test:**

Test specimen is prepared with 100% polyester fabric dyed at 1/1 SD with an undyed fabric of the same size stapled to each other and run in following bath for 30 minutes

1 g/l	Dispersing Agent
1 g/l	Leveling Agent
1 g/l	Carrier (Eco friendly)
0.5 g/l	Water softener
Acetic Acid for pH 4.5 - 5.0	
M:L Ratio -1:20	
Temp. $132 \pm 2^{\circ}\text{C}$ for 30 minutes	

Take out the test specimen, rinse, dry and assess as under.

Result		
Poor	05 - 15%	Dye migrated to undyed fabric
Moderate	16 - 25%	Dye migrated to undyed fabric
Good	26 - 50%	Dye migrated to undyed fabric



## **2.11 Thermomigration Test:**

Test specimen is prepared with 100% polyester fabric dyed at 2/1 SD, reduction cleared and neutralized. Then exposed to dry heat at 180 °C for 30 sec.

The heat treated fabric along with Multi Fiber (6 Nos.), treated in following bath for 30 minutes.

5 g/l

ECE Soap.

1 g/l

Sodium Perborate

Temp 60°C for 30 minutes

Rinse with water, dry below 60°C and assess the staining on Multi fiber against Grey Scale(staining). Especially on nylon, polyester & acrylic.

## **3.0 General Properties:**

### **3.1 Rate of Dyeing:**

% exhaustion of Clairosperse Dyes on polyester is plotted against dye bath temperature as well as time of dyeing. Bath is held at 130°C for 30 up to 45 mins. Respective exhaustion levels against temp, of dyeing are calibrated on the basis of final depth of shades as 100%

The data enable the dyer to identify critical temperature zones (C.T.Z.) of each dye for better control of dyeing time & temperatures, as well as in selection of compatible dyes for on-tone dyeing.

### **3.2 Exhaustion:**

With view to select / get saturation point of particular dye by exhaust dyeing. The dyeing of Indosperse Dyes dyes is carried out at various depths, light to dark on 100% polyester fabric at 130°C. for 45 minutes.

The K/S value derived from spectral data of each level is plotted on Y axis against concentration percentage on X axis. The curve rises from light to dark concentration but after certain rise curve flattens. The percentage concentration on the X axis corresponding to this point is referred to be saturation point. It may vary on the nature of dye application as well as on substrate quality. Dyeing above saturation point is worthless.

### **3.3 Stability to pH:**

The Dyeing of Clairosperse Dyes is carried out at various pH 3.0, 4.5, 7.0 & 9.0 to get the suitable pH range for dyeing. The dyed fabrics at pH 3.0, 7.0 & 9.0 are evaluated against reference dyed fabrics, dyed at 4.5 pH for strength and shade (hue and chroma)

Rating 1 to 5.

**3.4 Wool Reserve:**

The dyeing of Clairosperse Dyes at 1/1 RSD is carried out on equal portion of wool, polyester or Multifiber [6 Nos] at 98 °C and 120 °C for 45 minutes. Hot Soaping at 60 °C for 20 minutes. Assess the staining on wool against Grey Scale (Staining).

**3.5 Cotton Reserve:**

The dyeing of Clairosperse Dyes at 1/1 RSD is carried out on equal portion of cotton and polyester or Multifiber @ 130 °C for 45 minutes and hot soaping at 60 °C for 20minutes.

Assess the staining on cotton against Grey Scale (Staining).

Rating 1 to 5.

**3.6 Metal Ion Sensitivity:**

Dyeing at 1/1 RSD is carried out in the presence of metal salts as specified in DIN 54053-Z02 on 100% polyester at 130 °C for 45 minutes. The change of shade and strength lose is assessed.\*

**3.7 Metamerism:**

Metamerism is a basic and most important aspect of colour technology. Metamerism always involves a pair of objects. The dyeing of Clairosperse Dyes at 1/1 SD is assessed on Spectrophotometer as well as visually under different light source. Metamerism is indicated as Low/Moderate/High, based on the observation against D-65 light source.\*

**3.8 Affinity to other fibers:**

An attempt is made to give a general indication of the suitability of Clairosperse Dyes for other than 100% polyester material.

Clairosperse Dyes can also be applied on acetate, nylon, acrylic etc. It may show different hue and fastness properties on different fibers, hence Pre-trials are recommended prior to bulk production.

Affinity is indicated as low, Moderate & high.\*

\*Related information is given in the pattern shade card for guidance.

**3.9 Effect of Water Hardness:**

An attempt is made to give a general effect of water hardness as Ca++ & Mg + + on shade and strength of Clairosperse Dyes\*

**3.10 Suitability for Yarn, Fiber & Fabric:**

An attempt is made to give a general guidance for the suitability of, Clairosperse Dyes for various forms of polyester materials like Yarn, Fiber and fabric\*



### **3.11 Leveling at 130°C:**

The Dyeing of Clairosperse Dyes is carried out at 1/1 RSD on 100% polyester fabric on beam dyeing apparatus in laboratory condition at 130°C/45min. Assess the difference in depth of shade between the inside and outside of fabric.

Rating - Good, Moderate and poor.

### **3.12 Alkaline Dyeing:**

The Dyeing of Clairosperse Dyes is carried out at 1/1 RSD on 100% polyester fabric at 130°C at pH 9 and also at pH 4.5. After completing the cycle strength and tone of dyeing of pH 9 is evaluated against the dyeing at pH 4.5 and comment as, suitable or not Suitable.

### **3.13 Stripping:**

An attempt is made to give a general tendency of Clairosperse Dyes dyes for reductive/oxidative cleavage resulting in stripping of the dye from dyed material, is studied and documented here for user's guidance. This may damage the polyester material, hence it is advisable to carry out preliminary test in lab before bulk trial. The Dyeing of Indosperse Dyes is carried out at 1/1 RSD, is stripped out using following methods.

#### **A. [Reductive]**

4 gpl Caustic Soda
2.5 gpl Sodium Hydrosulphite
2 gpl Leveling Agent
2 gpl Carrier [Eco friendly, if required]

#### **B. [Oxidative]**

3 gpl Hydrogen Peroxide [50%]
4 gpl Carrier [Eco Friendly]
2 gpl Sodium Nitrate

The dyeing of Clairosperse Dyes is carried out at 1/1 RSD, is treated at 130°C/45min under solution A [Reductive], after that take out the specimen and rinse with water. The procedure is repeated with solution B [Oxidative].

Assess the specimen for percentage of colour stripped out.

\*Related information is given in the pattern shade card for guidance.

### **4.0 Rating:**

Rating	Excellent	::	5
	Very Good	::	4
	Good	::	3
	Fair	::	2
	Poor	::	1



**Abbreviations :**

Word	Description	Word	Description
S	Suitable	RD	Redder-Duller
NS	Not Suitable	RY	Redder-Yellower
LS	Limited Suitability	G	Greener
G	Good	MG	Much-Greener
M	Moderate	GB	Greener-Bluer
P	Poor	GD	Greener-Duller
D	Dischargeable	BL	Bluer
D*	Not suitable for white discharge	MB	Much Bluer
ND	Non Dischargeable	BD	Bluer-Duller
ND*	Not suitable for colour discharge	Y	Yellower
H	High	MY	Much-Yellower
L	Low	YR	Yellower-Redder
CTZ	Critical Temperature Zone	YD	Yellow-Duller
PES	Polyester	MD	Much Duller
PA	Polyamide	D	Duller
CO	Cotton	St	Stable
WO	Wool	Rmk	Remark
Ace	Acetate	COS	Change of Shade
Nyl	Nylon	SOP	Staining on adjacent polyster
Acr	Acrylic	HT	High Temperature Dyeing at 130°C
R	Redder	CD	Carrier Dyeing at 98-100°C
RB	Redder-Bluer	PT	Pad-Thermosol at 180-210°C
RSD	Reference Shade Depth	Satu	Saturation Point

- - Change in tone, loss in strength.
- - No change in tone, loss in strength.
- ◎ - Change in tone, loss in strength.
- - No effect

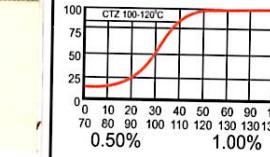
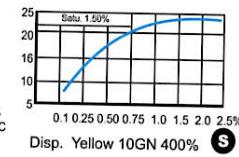
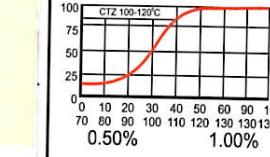
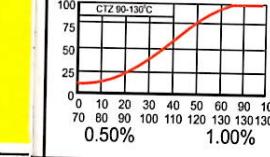
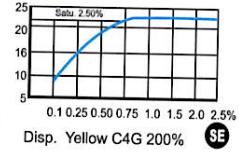
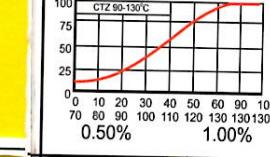
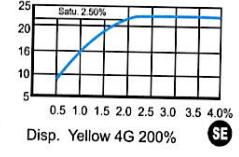
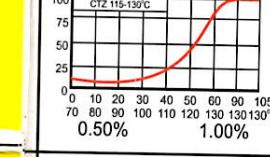
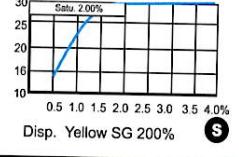
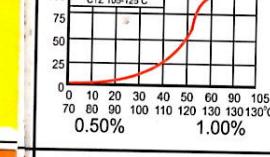
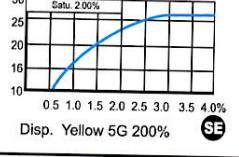
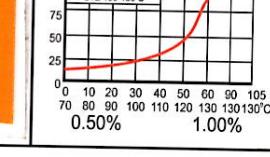
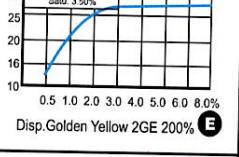
**Note :**

- The information and technical advice are complied with utmost care and knowledge, without any liability and can not be extended to cover every possible case.
- These are intended to service as non-binding guidelines and may be adopted to the prevailing conditions.
- Different fabric and application conditions may produce variations from the assessments illustrated.
- Samples of the products illustrated are available for customer evaluation.



## Disperse Dyes

### Dyeing on Polyester

						Fastness Properties											
						Process		Sublimation Fastness (ISO 105-P01)		Washing Fastness (ISO 105-C03 1987)		Perspiration Fastness (ISO 105-E04)					
						HT	CD	As Per AATCC 16E (20AFU)	Light Fastness at 1/1 RSD (Xenon Arc Lamp)	As Per ISO 105-B02	PES PA CO WO	PES PA CO WO	PES PA CO WO				
						SOP	SOP	SOP	SOP	As Per ISO 105-B02	PES PA CO WO	PES PA CO WO	PES PA CO WO				
				Rate of Dyeing	Saturation												
								Disp. Yellow 184:1	C. I. Number								
								Disp. Yellow 82									
								Disp. Yellow 79									
								Disp. Yellow 211									
								Disp. Yellow 114									
								Disp. Yellow 119									
								Disp. Yellow -56									



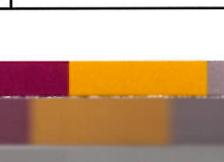
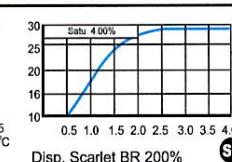
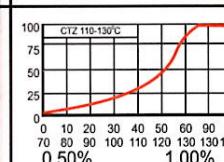
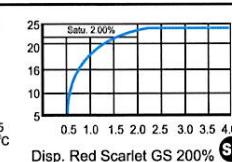
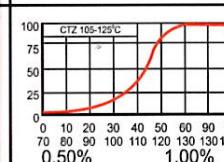
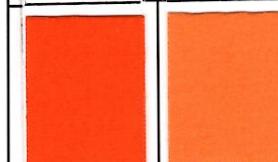
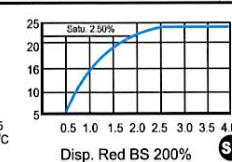
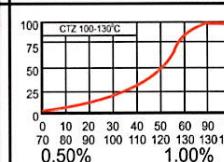
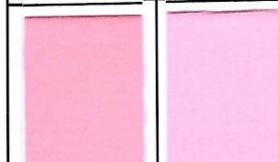
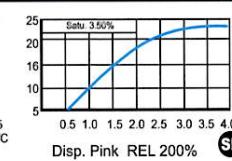
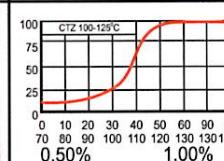
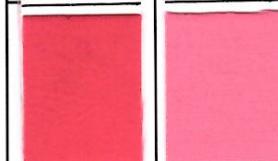
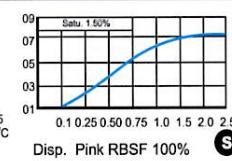
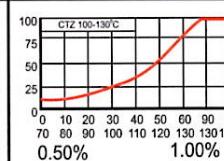
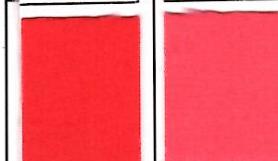
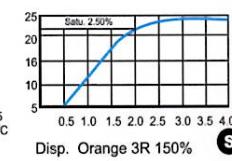
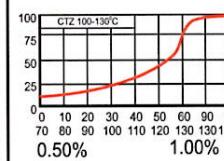
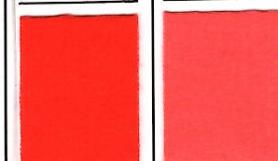
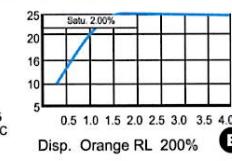
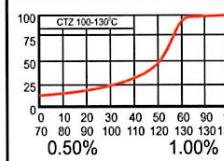


## Disperse Dyes

### Dyeing on Polyester

#### Rate of Dyeing

#### Saturation



C. I. Number	Fastness Properties									
	Process			Sublimation Fastness (ISO 105-P01)				Washing Fastness (ISO 105-C03 1987)		
	HT CD PT	As Per ATCC 16E (20AFU)	Light Fastness at 1/1/L RSD (Xenon Arc Lamp)	180°C 210°C	COS SOP	COS SOP	PES PA CO WO	PES PA CO WO	Perspiration Fastness (ISO 105-E04)	Abrasion Resistance (ISO 105-E04)
Disp. Orange 25	S LS NS	4	6	3	2-3	5	5	5	5	5
Disp. Orange-44	S NS S	4	6	5	4-5	5	4	4	5	5
Disp. Red 362/374	S S S	3	5-6	4-5	4	5	4-5	3-4	3-4	3-4
Disp. Red 91	S S S	4-5	6-7	4-5	4	5	5	4	4-5	4-5
Disp. Red 152	S NS S	4-5	7	4-5	4	5	4	4-5	5	5
Disp. Red 153	S LS S	3-4	5-6	4-5	3	4-5	4	4-5	4-5	4-5
Disp. Red 74	S LS S	3-4	5-6	5	4-5	5	4	4-5	4-5	4-5





## Disperse Dyes

Dyeing on Polyester			Disperse Dyes		Fastness Properties											
	Rate of Dyeing		Saturation		C. I. Number	Process			Light Fastness at 1/1 RSD (Xenon Arc Lamp)		Sublimation Fastness (ISO 105-POL)		Washing Fastness (ISO 105 C03 1987)		Perspiration Fastness (ISO 105-E04)	
						As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	SOP	COS	COS	180°C 210°C	210°C	PES PA CO WO	PES PA CO WO	PES PA CO WO	PES PA CO WO
Dyeing on Polyester	Rate of Dyeing	Saturation	C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp)	Sublimation Fastness (ISO 105-POL)	Washing Fastness (ISO 105 C03 1987)	Perspiration Fastness (ISO 105-E04)								
		 CTZ 105-130°C 0.50% 1.00%	Disp. Rubine GFL 200% <b>SE</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	4-5 4	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	
		 CTZ 00-130°C 0.50% 1.00%	Disp. Lumi. Pink 5BN 200% <b>E</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	3-4 5	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	
		 CTZ 105-130°C 0.50% 1.00%	Disp. Luminius Red J 100% <b>SE</b>	S NS	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	2-3 1-2	2-3	1-2	4	4-5	4-5	4-5	4-5	4-5	
		 CTZ 105-130°C 0.50% 1.00%	Disp. Red G 100% <b>SE</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	3-4 2-3	3-4	2-3	4	4	4	4	4	4	
		 CTZ 110-130°C 0.50% 1.00%	Disp. Red F3BS 100% <b>S</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	2-3 4-5	4-5	4	4-5	4-5	4-5	4-5	4-5	4-5	
		 CTZ 110-130°C 0.50% 1.00%	Disp. Red F3BS 150% <b>S</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	2-3 5	5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	
		 CTZ 105-120°C 0.50% 1.00%	Disp. Red FB 200% <b>E</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	4-5 6-7	4	2-3	4-5	4-5	4-5	4-5	4-5	4-5	
		 CTZ 105-120°C 0.50% 1.00%	Disp. Red 60 <b>E</b>	S S	As Per AAC/C 16E (20AFU)	As Per ISO 105 B02	2-3 2	2-3	2	4-5	4-5	4-5	4-5	4-5	4-5	





## Disperse Dyes

Dyeing on Polyester	Rate of Dyeing		Saturation		C. I. Number	Fastness Properties								
						HT As Per AATCC 16E (20AFU)	CD Light Fastness at 1/1 RSD (Xenon Arc Lamp)	PT As Per ISO 105 B02	180°C Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec.	210°C Washing Fastness (ISO 105 C03 1987)	PES PA CO WO	PES PA CO WO	Perspiration Fastness (ISO 105-E04)	Acidic Alkaline
					Disp. Red 167	S	NS	4	6-7	5	4-5	4-5	4-5	4-5
					Disp. Red 167.1	S	NS	4	6-7	5	4-5	4-5	4-5	4-5
					E	S	NS	4-5	6	4	3	4-5	4-5	4-5
					Disp. Red 13	S	NS	4-5	6-7	5	4-5	4-5	5	5
					Disp. Red 54	S	LS	4-5	6	5	4-5	5	5	5
					Disp. Red 50	S	S	4-5	6	4	3	5	5	5
					Disp. Red 1	LS	S	4-5	6	5	4-5	5	5	5

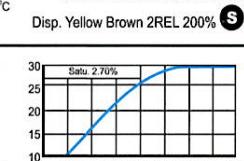
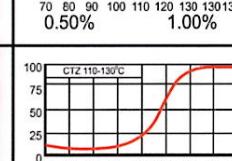
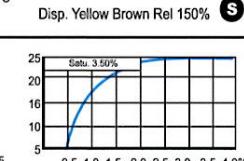
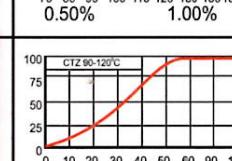
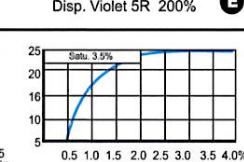
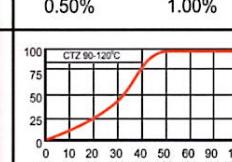
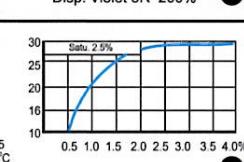
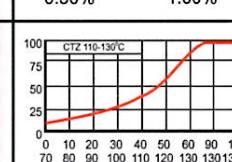
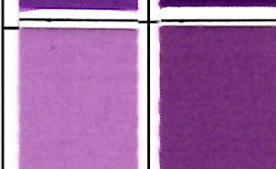
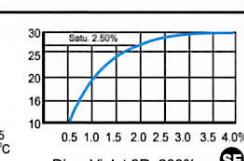
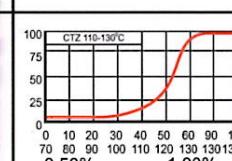
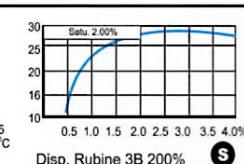
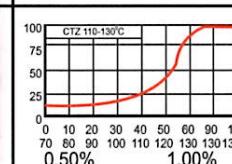
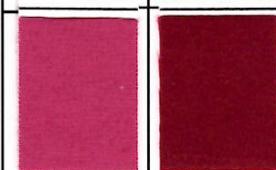
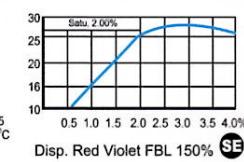
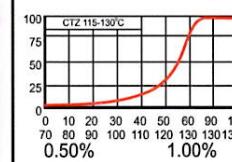
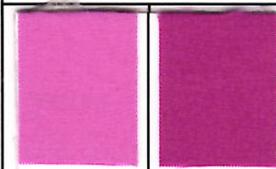


## Disperse Dyes

### Dyeing on Polyester

#### Rate of Dyeing

#### Saturation



	C. I. Number	Fastness Properties							
		HT As Per AATCC 16E (20AEU)	CD As Per ISO 105-B02	PT SOP	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp)	Sublimation Fastness (ISO 105-P01) 180°C 210°C Dry heat for 30 Sec.	Washing Fastness (ISO 105-C03 1987)	Abrasion PES PA CO WO
Disp. Violet 26	S NS S	4-5	6	4	4-5	4-5	4-5	4-5	4-5
Disp. Violet 33	S NS S	4	6	5	4-5	4-5	4-5	4-5	4-5
Disp. Violet 63	S NS S	3-4	5-6	4-5	4	4-5	3-4	3-4	3-4
Disp. Violet 5	S S NS	3	5	4	3	4-5	3	3	3
Disp. Orange 30	S LS S	4-5	6-7	5	4-5	5	4	4-5	4-5
Disp. Orange 30:1	S LS S	4-5	6-7	5	4-5	5	4	4-5	4-5
Disp. Brown 1	S NS S	4	5-6	4-5	4	4-5	4	4	4



Fastness Properties					General Properties					Dyeing Properties			Printing Properties			
Dry Wet	PES SOP	Rubbing Fastness (ISO 105-E2 1987)	Bleaching Peroxide (ISO 105 No.2 1987)	UV SOP	Dye cleaving (ISO 105-001 1987) Perchloro ethylene	98°C 120°C	98°C 130°C	Cotton Reserve	Fe <sup>+2</sup>	Metal Ion Sensitivity	TL84 CWF A Rmk	Metamerism (D 65 Control)	Ace Nyl Acr	Affinity to other Fibre (At 100°C)	Zn Sulfoxylate Formaldehyde Na Sulfoxylate Formaldehyde	Discharge ability
4-5 4 4-5	4-5 4-5 4-5	4-5 3-4	G	3-4	100 100 100	3 3 3	4 4 4	○ ● ○	ST D MY (M)	H H L	1-2 3-4	LS S S	Levelling at 130°C	ND ND	190 - 200°C	
4-5 4 4-5	4-5 4-5 4-5	4-5 4-5 4-5	G	3-4	100 60 30	2-3 2-3	4 4	○ ○ ○	BL BL Y (L)	H H M	5 2-3 2-3	S S S	Stripping	190 - 210°C	200 - 210°C	
4-5 4 4-5	4-5 4-5 4-5	4 5	G	3-4	100 100 100	3 3 3	4 4 4	○ ○ ○	G G G (L)	H H L	1 1 1	Yarn Fabric Fibre	Alkaline Dyeing	High Temperature Steaming	Thermosol (Optimum Fixing Temp)	
4 2-3 4-5 4 4-5	4-5 4-5 4-5 4-5 4-5	4-5 4-5 4-5 4-5 4-5	M	3	100 100 100 100 100	3 3 3 4 4	4 4 4 4 4	● ● ● ● ●	ST D MY (M)	H H L	1 1 1	S S S	Pressure Steaming	ND ND	190 - 200°C	
4-5 3-4 4-5 4-5	4-5 4-5 4-5 4-5	4-5 4-5 4-5 4	G	4	100 95 95 2-3	3-4 4 4 4	4-5 4-5 4-5 4	○ ○ ○ ○	Y YD RY (M)	H M L	2-3 1 1	G G	129 - 131°C	129 - 131°C	129 - 131°C	
4-5 3-4 4-5 4-5	4-5 4-5 4-5 4-5	4-5 4-5 4-5 4	G	4	100 95 95 2-3	3-4 4 4 4	4-5 4-5 4-5 4	○ ○ ○ ○	Y YD RY (M)	H L L	5 1 1	S S S	D D D	D D D	190 - 210°C	
4-5 2-3 4-5 4	4-5 4-5 4-5 4	4-5 4-5 4-5 4	G	3-4	100 95 90 2-3	2-3 3-4	4 4 3-4	● ● ○	ST D Y (L)	H H L	4-5 1	S S S	D* D* D*	D* D* D*	200 - 210°C	

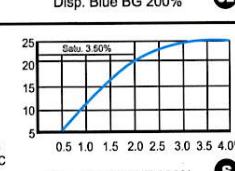
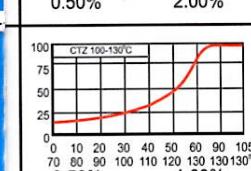
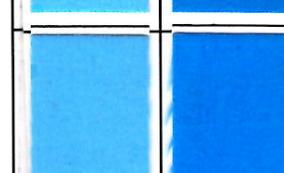
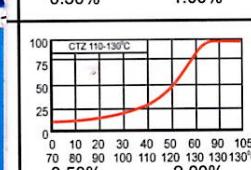
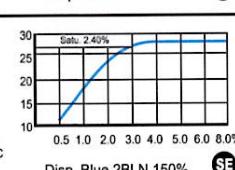
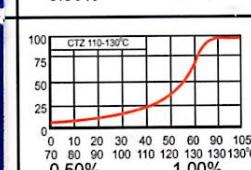
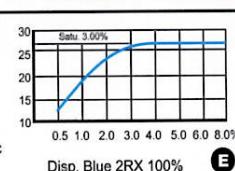
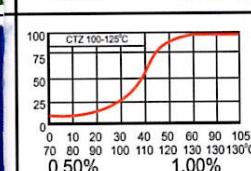
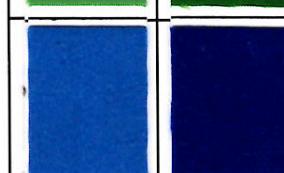
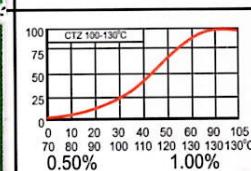
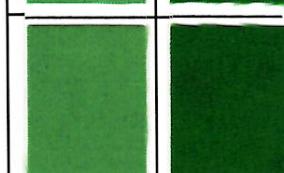
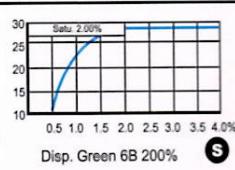
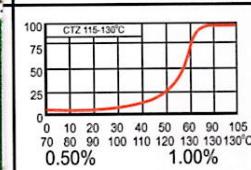
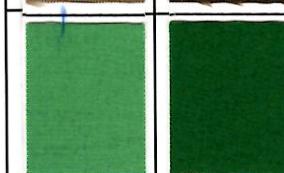
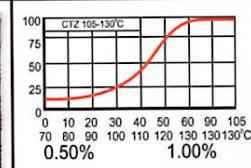
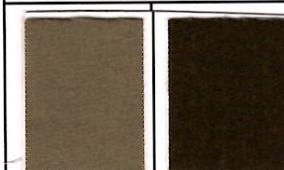


## Disperse Dyes

### Dyeing on Polyester

#### Rate of Dyeing

#### Saturation



C. I. Number	Fastness Properties									
	Process	Sublimation Fastness (ISO 105-P01)			Wetting Fastness (ISO 105-C03 1987)			Perspiration Fastness (ISO 105-E04)		
		As Per AATCC 18E (20AFLU)	Light Fastness at 1/1 RSD (Denton Arc Lamp)	Dry Heat for 30 Sec. 180°C ± 10°C	As Per ISO 105-B02	PES	PES	PA	PA	CO
S	HT	5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
NS	CD	6				3-4	3-4	4	4	4
S	PT					4.5	4	3-4	4	4

Disp. Green 9	S	3-4	3-4	5	4.5	4.5	4.5	4.5	4.5	4.5
	NS	2-3	3-4			4	4	4	4	4
	S			4.5	4	4	4	4	4	4

Disp. Blue 56	S	3-4	5	4	3-4	4.5	4.5	4.5	4.5	4.5
	S	4	6			4	3	4	4	4
	NS			3	2	3-4	3-4	3-4	3-4	3-4

Disp. Blue 56:1	S	3-4	5-6	4-5	4	4	5	5	5	5
	NS	3	4			3	4-5	4-5	4-5	4-5
	S			4		4	4	4	4	4

Disp. Blue 60	S	4-5	6-7	4-5	4	4-5	4-5	4-5	4-5	4-5
	NS	4-5				4	4	4	4	4
	NS			4	3	4	4	4	4	4

Disp. Blue 60	S	3	4	5	4-5	4-5	4-5	4-5	4-5	4-5
	NS			4-5	4	4	4	4	4	4
	S			4	4	4	4	4	4	4



Fastness Properties						General Properties						Dyeing Properties			Printing Properties										
	M	G	W	S	P		98°C 120°C	98°C 130°C	98°C 130°C	Fe <sup>+2</sup>	Cu <sup>+2</sup>	TL84 CWF A Rmk	Metamerism (D 65 Control)	Ace Ny Acr	Affinity to other Fibre (At 100°C)	Effect of water hardness (As Ca++, Mg++)	A	B	Stripping	Yarn Fabric Fibre	Suitability for	Leveling at 130°C	Discharge ability		
4.5	5	4.5	4.5	4.5	4.5	4	90 80 40	2-3 2-3	4-5	◎	○	G G RY	H H L	H		◎	1-2	5	S S S	S		G			
4.5	3.4	4.5	4.5	4.5	4.5	4	95 Nil Nil	4	4	○	○	BI BI MG H	M M L	H								120 - 131°C	Temp. Range in Dyeing		
4	4.5	4.5	4	4.5	P	4	95 90 80	3	3-4	◎	○	BI BI BI M	H H M			○		4	S S S				Alkaline Dyeing		
4	4.5	4.5	4	4.5	G	3-4	95 90 80	2-3	3-4	○	○	GB B R	HS					1	S S S	P				Pressure Steaming	
4	5	4.5	4.5	4	4	M	2-3	100 100 100	2-3	3-4	○	G B R	H H M			○	4-5	LS S LS	G					High Temperature Steaming	
4	4	4.5	4	4	M	2-3	100 100 100	2	3-4	○	○	L	H H L				2	NS	S	NS		D	Zn Sulfoxylate Formaldehyde		
4.5	5	4	3-4	4-5	M	3-4	100 100 100	3	4	◎	◎	St R	H H L					NS	NS	S		D*	D	Na Sulfoxylate Formaldehyde	
4	4	4	4	4	M	3-4	100 100 100	3	4	○	○	G GD M	H H L			○	1-2	S S S	P						
4.5	5	4.5	4	3-4	G	3-4	100 100 100	4	4	○	○	St R	H H L				1	S S S	G						
4.5	4.5	4.5	4	3-4	G	3-4	100 100 100	3-4	4	●	○	St R GD	H H L				4-5	S S S	S	NS		D*	D*	129 - 131°C	
4.5	4	4.5	4	3-4	G	3-4	95 Nil Nil	2	3-4	○	○	BI BI MG	M M L				1-2	S S S	S	NS		D*	D*	129 - 131°C	
4.5	4.5	4.5	4	4	M	4	95 Nil Nil	2	4	○	○	BI BI MG	M M L			○		NS	S S S	ND*	ND*	ND*	ND*	130 - 135°C	
4.5	4	4.5	4	4	M	4	95 Nil Nil	2	4	○	○	BI BI MG	M M L				1-2	S S S	G	NS	S S S	ND*	ND*	ND*	190 - 200°C
4.5	4.5	4.5	4	4	M	4	95 Nil Nil	2	4	○	○	BI BI MG	M M L					NS	NS						190 - 200°C
4.5	4	4.5	4	4	M	4	95 Nil Nil	2	4	○	○	BI BI MG	M M L					NS	180 - 190°C	200 - 210°C	200 - 210°C	200 - 210°C	200 - 210°C	Thermosol (Optimum Fixing Temp)	Thermosol (Optimum Fixing Temp)



## Disperse Dyes

### Dyeing on Polyester

#### Rate of Dyeing

#### Saturation

		C. I. Number	Fastness Properties								
Process	As Per AATCC 16 (20AU)		Light Fastness at 1.1 RSD (Deben Arc Lamp)		Sublimation Fastness (ISO 105-P01)		Washing Fastness (ISO 105-C03 1987)		Perspiration Fastness (ISO 105-E04)		
			HT	CD	180°C 105-P01	210°C Dry Heat for 30 Sec.	COS	COS	PES PA CO WO	PES PA CO WO	
Disp. Blue BRSL 200%	S	4-5	4	4-5	4-5	4-5	4-5	4-5	4-5	4-5	
	NS	4	6				4	3	4	4	
	S						4	3	4	4	
Disp. Blue GSL 400%	S	5	4-5	4	5	5					
	NS	4	5-6				3-4	4	4	4	
	S						4-5	4-5	4-5	4-5	
Disp. Blue DBR 200%	S	4-5	4	4	4	4					
	LS	3-4	5-6				3	3	3	3	
	LS						4-5	4-5	4-5	4-5	
Disp. Blue SR 200%	S	4-5	4	4	4	4					
	NS	2-3	3-4				4	4	4	4	
	S						4-5	4-5	4-5	4-5	
Disp. Blue SE2RI 200%	S	4-5	4	4	5	5					
	NS	3-4	5-6				3-4	4	4	4	
	S						4-5	4-5	4-5	4-5	
Disp. Cyanine Blue B 200%	S	5	4-5	4-5	4-5	4-5					
	NS	3-4	5-6				4	4	4	4	
	S						4-5	4-5	4-5	4-5	
Disp. Navy Blue 3G 200%	S	4-5	4	4	4	4					
	NS	3	5-6				3-4	4	4	4	
	S						4-5	4-5	4-5	4-5	



Fastness Properties								General Properties						Dyeing Properties				Printing Properties											
Dry	Wet	Wash	Soil	Oxid.	COS	SOP	Deasching at 110°C (ISO 105 E.10 1987)	Bleaching Peroxide (ISO 105 No. 2 1987)	Dry cleaning (ISO 105 D.01 1987)	Carbonising with 70% H <sub>2</sub> SO <sub>4</sub> (ISO 105-S.02)	Migration at 130°C Thermomigration at 180°C / 30 Sec.	Stability to pH 9 - 7	Stability to pH 9 - 7	Wool Reserve 98°C	Cotton Reserve 98°C	Fe Cu <sup>+2</sup>	Metal Ion Sensitivity TL84 CWF A (D 65 Control)	Metamerism H	Affinity to other Fibre L	Ace Nyl Acr	Effect of water hardness (As Ca++ , Mg++)	A B	Yarn Fabric Fibre	Stripping	Suitability for Levelling at 130°C G	Pressure Steaming	High Temperature Steaming	Zn Sulfonylate Formaldehyde Na Sulfonylate Formaldehyde	Discharge ability
4-5	4	5	4-5	4	3-4	G	3-4	100	95	3-4	4	○	○	St	R	GD	(M)	H	H	L	Ac	Nyl	Acr	Effect of water hardness (As Ca++ , Mg++)					
4-5	4	4-5	4-5	4	3-4	G	3-4	80	3-4	4	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4-5	5	4-5	4-5	4	5	G	3-4	95	70	3	4	○	○	○	○	○	○	B	B	MG	(M)	TL84 CWF A (D 65 Control)	Effect of water hardness (As Ca++ , Mg++)						
4	4	4-5	4-5					50	2-3	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4-5	5	4-5	4-5	4	5	G	3	100	100	3-4	4	○	○	○	○	○	○	G	G	G	G	(L)	Effect of water hardness (As Ca++ , Mg++)						
4-5	5	4-5	4-5	4	5	G	3	80	70	3	4	○	○	○	○	○	○	H	H	H	L	(L)	Effect of water hardness (As Ca++ , Mg++)						
4-5	4	4-5	4-5	4	4-5	P	4	100	95	4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4	4-5	4-5	4-5	4	4-5	P	4	Nil	Nil	4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4	4	4-5	4-5	4	4-5	P	4	40	3-4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4-5	4	4-5	4-5	4	5	G	3	100	80	3-4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4	4	4-5	4-5	4	4-5	P	4	40	3-4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4-5	5	4	3-4	4-5	M	3-4	100	100	3-4	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4	4	4	3-4	4-5	M	3-4	100	100	3	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
4-5	4-5	4-5	4-5	4	4-5	M	4	95	2	3-4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
4-5	4-5	4-5	4-5	4	4-5	M	4	Nil	Nil	2	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
4-5	4	4-5	4-5	4	4-5	M	4	4-5	2	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
4-5	5	4-5	4-5	4	4-5	G	3-4	90	50	2-3	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
4-5	4-5	5	4-5	4	4-5	G	3-4	50	10	2	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
4-5	4	4-5	4-5	4	4-5	G	3-4	50	10	2	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
200 - 200°C	200 - 210°C	190 - 200°C	190 - 210°C	200 - 210°C	200 - 210°C	190 - 200°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C	180 - 190°C	200 - 210°C				

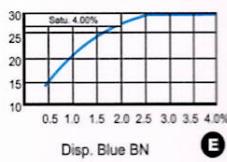
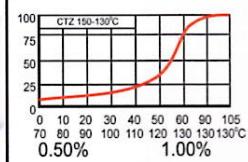
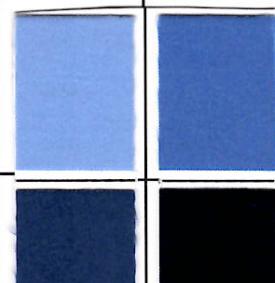


## Disperse Dyes

### Dyeing on Polyester

#### Rate of Dyeing

#### Saturation



C. I. Number	Fastness Properties							
	Process		Light Fastness at 1/1 BS 106 (ISO 105-P01)		Sublimation Fastness (ISO 105-C03) at 180°C for 30 Sec.		Washing Fastness (ISO 105-C03 1987)	
	HT	CD	At Per AATCC 3E (20ATU)	At Per ISO 205-B02	180°C	210°C	PES (ISO 105-E04)	PVC (ISO 105-E04)
Disp. Blue 3	S	NS	3-4	5-6	4	3	4	4
	NS	NS			3	2	5-4	5-4
							4-5	4-5
S	S	NS	3	5-6	5	4-5	4-5	4-5
	NS	S			4-5	4	4	4
							4-5	4-5
S	S	NS	4	6	3-4	3	4-5	4-5
	NS	NS			3	2	3	3-4
							4-5	4-5
S	S	NS	4	6	3-4	3	4-5	4-5
	NS	NS			3	2	3	3-4
							4-5	4-5
S	S	NS	4	6	3-4	3	4-5	4-5
	NS	NS			3	2	3	3-4
							4-5	4-5
S	S	NS	4	6	3-4	3	4-5	4-5
	NS	NS			3	2	3	3-4
							4-5	4-5
S	S	NS	4	6	3-4	3	4-5	4-5
	NS	NS			3	2	3	3-4
							4-5	4-5
S	S	NS	4	6	5	4-5	4-5	4-5
	NS	NS			4-5	4	4	4
							4-5	4-5

