DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

DEO PIYU DYESTUFFS

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DEO PIYU DYESTUFFS

DISPERSE DYES

DEO PIYU INDUSTRIES
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About Us

"DEO PIYU INDUSTRIES" Since 1992, We call it a GEN-NXT organaization, after striving Efforts & Sheer Dedication towards Learning the roots of Dyestffs & Intermediates, Delivering most comprehensive range of high quality Dyes, today we are proud to own brand name "DEO PIYU" The Growth & Success of DEO PIYU INDUSTRIES is because of the work force & Management of Team behind the res carpet. Confidence behind the quality is due to our client happiness, superior technology behind every equipment, process of continuous growth and becoming leader worldwide is aim of this Young DEOPIYU INDUSTRIES. We like our Dyes to spaek more than us is our Mantra.

MISSION : DEO PIYU INDUSTRIES is totally commited for timely delivery, Keeping look on consistence of quality of our product, we believe to make DEO PIYU INDUSTRIES a Customer Centric Company.

VISION : Conservation of Environment and give Colourful world to our next generation (COLOR CHEMISTRY FOR EVER) by making our DEO PIYU DYES under Eco-logical aspects.

QUALITY ASSURANCE : DEO PIYU INDUSTRIES is a Certified Company and Member of GCCI and Chemexcill as well. Our Motto is performance Based high quality dyes with consistant quality having State of the art Laboratory. DEO PIYU is well equipped with all international Standards of Testing Equipment Which ensures which quality of Products.

ECO FRIENDLY : We fully understand our liability towards society of which we are part of DEOPIYU INDUSTRIES religiously follows the statutory norms set by Government in order to minimize our pollution. We urges the reader to take care of our Environment in order to fulfill our motto of " COLOR CHEMISTRY FOR EVER" for our next generation.

EXPANSION PLANS : DEO PIYU INDUSTRIES presently have capacity to fulfill monthly requirnment of 3000 MT Dyes, The 4 Spray Dryers With Hourly capacity of 1800 litre is one of the Ultra-Modern Drying Facility the Company possess. DEO PIYU INDUSTRIES also set up second plant in newly developing industrial area of Gujarat in Dahej. where company is estimating to make around 500 MT/ month of Dyestuff and 200 MT/ Month of Intermediates.

CLIENTS : Being a Young company DEO PIYU INDUSRIES is proud to inform that most of its clients are based in almost 30 countries around the world starting from East to West, We are fortunate for working with Multi Nationals around the Globe.

Classification of Deosperse 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 Deosperse Dyes :

Deosperse 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 Deosperse Dyes :

Deosperse Dyes are slowly sprinkled in ten times of its weight of soft warm water (40° - 50°C) under slow stirring.

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

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1.0 Application Method:

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

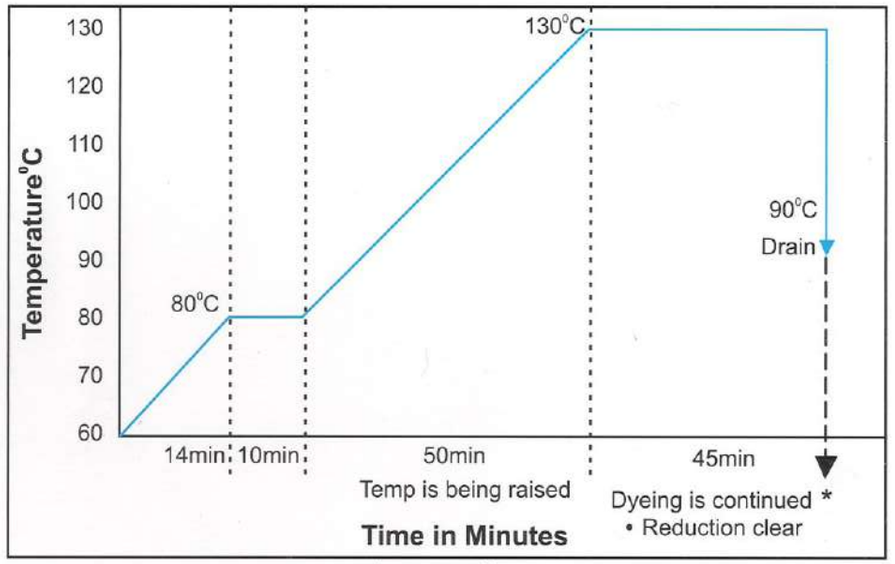
Dye bath addition :

X %	Deosperse Pre-Dispersed Dyes
1 g/l	Dispersing Agent
0.5-1 g/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 %	Deosperse 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
•Drin the dye bath and dyed goods should be rinsed with hot water and reduction cleared as per procedure.

1.2 Thermosol Process:

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

Pad - Liquor recipe:

X %	Deosperse 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/cm²
•pH 4.5 - 5.0.

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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 :

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

1.3.1 Direct Printing :

Printing Recipe

X	%	
		Deosperse 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	Deosperse 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:

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

1.3.3.2 Pressure Steaming:

Deosperse "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.

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2.0 Fastness Properties :

The fastness properties of Deosperse 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.

	A-Alkaline	B-Acidic
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 ± 2 °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 ± 2°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 ± 2°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°C.

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

Rating 1 to 5.

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2.8 Decatising (110°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% H_2SO_4) Test (ISO 105 X 02):

As per procedure a test specimen is treated under 70% H_2SO_4 at 25 ± 2°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 ± 2°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 Deosperse 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 Deosperse 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 Deosperse 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.

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3.4 Wool Reserve:

The dyeing of Deosperse 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 Deosperse 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 Deosperse 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 Deosperse Dyes for other than 100% polyester material.
Deosperse 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 Deosperse Dyes*

3.10 Suitability for Yarn, Fiber & Fabric:

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

3.11 Wool Reserve:

The dyeing of Deosperse 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).

3.12 Cotton Reserve:

The dyeing of Deosperse 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.

3.13 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.*

Metamerism:

A. [Reductive]	B. [Oxidative]
4 gpl Caustic Soda	3 gpl Hydrogen Peroxide [50%]
2.5 gpl Sodium Hydrosulphite	4 gpl Carrier [Eco Friendly]
2 gpl Leveling Agent	2 gpl Sodium Nitrate
2 gpl Carrier [Eco friendly, if required]	

The dyeing of Deosperse 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

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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.

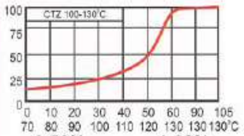
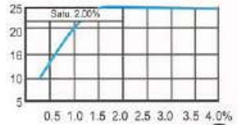
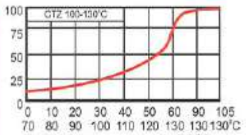
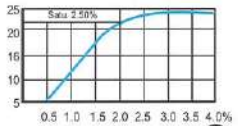
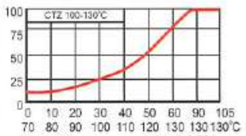
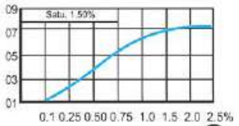
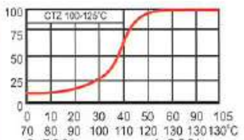
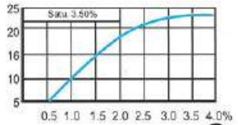
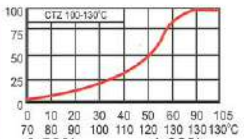
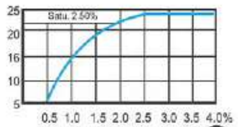
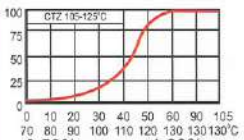
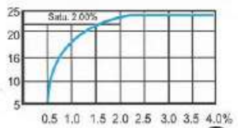
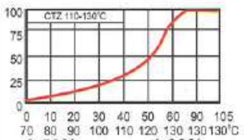
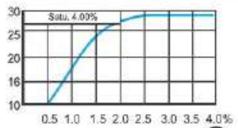
Disperse Dyes

Dyeing on Polyester	Rate of Dyeing	Saturation	C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp)	Sublimation Fastness (ISO 105-P01) 180°C	Sublimation Fastness (ISO 105-P01) 210°C	Washing Fastness (ISO 105 C03 1987)	Perspiration Fastness (ISO 105-E04) Acidic	Perspiration Fastness (ISO 105-E04) Alkaline
				HT				PES	PES	PES
				CD	As Per AATCC 16E (20AFU)	COS	COS	PA	PA	PA
				PT	As Per ISO 105 B02	SOP	SOP	CO WO	CO WO	CO WO
	CTZ 100-120°C	Satu. 1.50%	Disp. Yellow 184:1	S		4-5	4	4	4-5	4-5
	0.50% 1.00%	Disp. Yellow 10GN 400% (S)		S	3			4	4	4
				S		5-6		4-5	4-5	4-5
				S			3-4	4-5	4-5	4-5
	CTZ 100-120°C	Satu. 1.50%	Disp. Yellow 82	S		4-5	4	4	4-5	4-5
	0.50% 1.00%	Disp. Yellow 8GF 100% (S)		S	3			4	4	4
				S		5-6		4-5	4-5	4-5
				S			3-4	4-5	4-5	4-5
	CTZ 99-130°C	Satu. 2.50%	Disp. Yellow 79	S		4-5	4	4-5	4-5	4-5
	0.50% 1.00%	Disp. Yellow C4G 200% (SE)		LS	4-5			4	4	4
				S		6		4-5	4-5	4-5
							3	4-5	4-5	4-5
	CTZ 96-130°C	Satu. 2.50%	Disp. Yellow 211	S		4-5	4	4-5	4-5	4-5
	0.50% 1.00%	Disp. Yellow 4G 200% (SE)		S	4-5			4	4	4
				S		6-7		4-5	4-5	4-5
							3	4-5	4-5	4-5
	CTZ 115-130°C	Satu. 2.00%	Disp. Yellow 114	S		5	4-5	4-5	4-5	4-5
	0.50% 1.00%	Disp. Yellow SG 200% (S)		NS	4-5			4	4	4
				S		6		4-5	4-5	4-5
							4	4-5	4-5	4-5
	CTZ 105-130°C	Satu. 2.00%	Disp. Yellow 119	S		4-5	4	4-5	4-5	4-5
	0.50% 1.00%	Disp. Yellow 5G 200% (SE)		S	4			4	4	4
				S		6-7		4-5	4-5	4-5
							3	4-5	4-5	4-5
	CTZ 100-130°C	Satu. 3.50%	Disp. Yellow -56	S		4	3	4-5	5	5
	0.50% 1.00%	Disp.Golden Yellow 2GE 200% (E)		NS	4			4	4-5	4-5
				NS		6		4-5	5	5
							2	4-5	4-5	4-5

Fastness Properties								General Properties								Dyeing Properties				Printing Properties				
Rubbing Fastness (ISO 105x12 1987)	Bleaching Peroxide (ISO 105 No.2 1987)	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105-X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	Stability to pH PH-4.5 100% (Control)	Wool Reserve	Cotton Reserve	Metal Ion Sensitivity	Metamerism (D 65 Control)	Affinity to other Fibre (At 100°C)	Effect of water hardness (As Ca++, Mg++)	Stripping	Suitability for	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Pressure Steaming	High Temperature Steaming	Discharge ability		Thermosol (Optimum Fixing Temp)
Dry	PES	COS					pH	98°C	98°C	Fe^{+2}	TL84	Ace		A									
Wet	PA CO WO	SOP					3 ~ 7 9	120°C	130°C	Cu^{+2}	CWF A Rmk	Nyl Acr		B	Yarn Fabric Fibre						Zn Sulfoxylate Formaldehyde	Na Sulfoxylate Formaldehyde	
4-5	4-5	4-5					100	2-3	4	◉	R	H		5	S								
	4-5		4-5	4-5	M	3-4	50				R	H			S	G	120 - 130°C	NS	S	S	ND	ND	200 - 210°C
	4-5						10				RD	M	◐		S								
4-5	4-5	4-5						1-2	4	◯	(H)			1									
4-5	4-5	4-5					100	2-3	4	◉	R	H		5	S								
	4-5		4-5	4-5	M	3-4	50				R	H			S	G	120 - 130°C	NS	S	S	ND	ND	200 - 210°C
	4-5						10				RD	M	◐		S								
4-5	4-5	4-5						1-2	4	◯	(H)			1									
4	4-5	4-5					100	3-4	3-4	◉	St	H		5	S								
	4		4-5	4	G	3-4	100				G	H			S	G	129 - 131°C	LS	S	S	D	D	190 - 200°C
	4-5						100				G	L	◉		S								
4	4-5	4						3	3-4	◯	(L)			2-3									
4	4-5	4-5					100	3-4	4-5	◉	G	H		5	S								
	4		4-5	4-5	G	3-4	90				G	H	◉		S	G	125 - 130°C	NS	S	S	D	D	190 - 200°C
	4-5						80				R	M			S								
4	4-5	4						2-3	4-5	◯	(L)			3-4									
4	4-5	4-5					85	3-4	4	◉	St	H		5	S								
	4		4	4-5	G	4	70				G	H	◉		S	G	129 - 131°C	NS	S	S	ND*	D*	200 - 210°C
	4-5						30				R	M			S								
4	4-5	4-5						3	4	◯	(L)			2-3									
4	4-5	4-5					100	3-4	4-5	◉	G	H		5	S								
	4		4-5	4-5	G	3	90				G	L	◉		S	G	125 - 131°C	NS	S	S	D	D*	190 - 200°C
	4-5						80				R	H			S								
4	4-5	4						2-3	4-5	◯	(L)			3-4									
4	4-5	4-5					100	3-4	4-5	◉	St	H		2-3	NS								
	3		4-5	3-4	G	3	100				YD	H	◉		S	G	129 - 131°C	S	NS	NS	D*	D*	NS
	4-5						100				Y	M			NS								
4	4-5	4-5						3	4	◉	(M)			1									

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Disperse Dyes

Dyeing on Polyester	Rate of Dyeing	Saturation	C. I. Number	Fastness Properties: Process (HT / CD / PT)	Light Fastness at 1/1 RSD (Xenon Arc Lamp): As Per AATCC 16E (20AFU)	Light Fastness: As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec.: 180°C (COS / SOP)	Sublimation Fastness: 210°C (COS / SOP)	Washing Fastness (ISO 105 C03 1987) (PES / PA / CO / WO)	Perspiration Fastness (ISO 105-E04): Acidic (PES / PA / CO / WO)	Perspiration Fastness: Alkaline (PES / PA / CO / WO)
	 0.50% 1.00%	 Disp. Orange RL 200% E	Disp. Orange 25	S LS NS	4	6	3 2-3	2-3 1-2	5 4 4-5 4-5	5 4 5 4-5	5 4 5 4-5
	 0.50% 1.00%	 Disp. Orange 3R 150% S	Disp. Orange-44	S NS S	4	6	5 4-5	4-5 4	5 4 5 4-5	5 4-5 5 4-5	5 4-5 5 4-5
	 0.50% 1.00%	 Disp. Pink RBSF 100% S	Disp. Red 362/374	S S S	3	5-6	5 4-5	4-5 4	4-5 3-4 4-5 4	4-5 3-4 4-5 4	4-5 3-4 4-5 4
	 0.50% 1.00%	 Disp. Pink REL 200% SE	Disp. Red 91	S S S	4-5	6-7	4-5 4	4 3-4	5 4 4-5 4-5	5 4-5 5 4-5	5 4-5 5 4-5
	 0.50% 1.00%	 Disp. Red BS 200% SE	Disp. Red 152	S NS S	4-5	7	5 4-5	4-5 4	5 4 4-5 4-5	5 4-5 5 4-5	5 4-5 5 4-5
	 0.50% 1.00%	 Disp. Red Scarlet GS 200% SE	Disp. Red 153	S LS S	3-4	5-6	4-5 4	4 3	5 4 4-5 4-5	5 4-5 5 4-5	5 4-5 5 4-5
	 0.50% 1.00%	 Disp. Scarlet BR 200% SE	Disp. Red 74	S LS S	3-4	5-6	5 4	4-5 3-4	5 4 4-5 4-5	5 4-5 5 4-5	5 4-5 5 4-5

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties: Rubbing Fastness (ISO 105x12 1987) (Dry / Wet)	Bleaching Peroxide (ISO 105 No.2 1987) (PES / PA / CO / WO)	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene (COS / SOP)	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105-X02)	Mirgration at 130°C	Thermomigration at 180°C / 30 Sec.	General Properties: Stability to pH PH-4.5 100% (Control) (pH 3 / 7 / 9)	Wool Reserve (98°C / 120°C)	Cotton Reserve (98°C / 130°C)	Metal Ion Sensitivity (Fe+2 / Cu+2)	Metamerism (D 65 Control) (TL84 / CWF / A / Rmk)	Affinity to other Fibre (At 100°C) (Ace / Nyl / Acr)	Effect of water hardness (As Ca++, Mg++)	Stripping (A / B)	Dyeing Properties: Suitability for (Yarn / Fabric / Fibre)	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Printing Properties: Pressure Steaming	High Temperature Steaming	Discharge ability: Zn Sulfoxylate Formaldehyde	Discharge ability: Na Sulfoxylate Formaldehyde	Thermosol (Optimum Fixing Temp)
4 4	4-5 3 4-5 4-5	4-5 4-5	3-4	3-4	G	3	100 100 100	3-4 2-3	4-5 4-5	◉ ◉	R YD YD Ⓜ	H H M	◉	4-5 1	Ns S NS	G	125 - 130°C	S	NS	NS	D*	D*	NS
4-5 4-5	4-5 3 4-5 4	4 4	4	4	G	4	100 100 100	3-4 2-3	4-5 4-5	● ●	ST YD Y Ⓗ	H L H	◉	5 1-2	S S S	G	129 - 131°C	S	S	S	D	D*	200 - 210°C
4-5 4-5	4-5 4 4-5 4	4-5 4-5	3-4	4-5	G	3-4	90 50 10	3-4 2	4 4	◐ ○	YD YD RD Ⓗ	H H M	◉	4 1	S S S	G	129 - 131°C	NS	S	S	ND	ND	200 - 210°C
4 4	4-5 4 4-5 4-5	4-5 4-5	4-5	4	G	4	100 100 80	3-4 3	4-5 3	◉ ●	St D Y Ⓛ	H H L	◉	4-5 1-2	S S S	G	125 - 130°C	NS	S	S	ND	ND	190 - 200°C
4-5 4-5	4-5 2-3 4-5 4-5	5 4-5	4-5	4-5	G	4	95 95 70	3-4 2	4-5 4	◉ ○	St D MY Ⓗ	H H L	◉	4-5 1-2	S S S	G	129 - 131°C	NS	S	S	D	D	200 - 210°C
4-5 4-5	4-5 2-3 4-5 4-5	4-5 4-5	4-5	4-5	M	3	100 100 100	3 2	4-5 4	◉ ○	Y YD YB Ⓗ	H H M	◉	1-2 1	S S S	G	125 - 130°C	S	S	S	D	D*	190 - 200°C
4-5 4-5	4-5 2-3 4-5 4-5	4 4	4	4-5	M	3	90 80 50	3-4 2	4-5 4-5	◉ ●	St D MY Ⓗ	H H L	◉	4-5 3	S S S	G	125 - 130°C	NS	S	S	D	D	190 - 200°C

Disperse Dyes

Dyeing on Polyester

Rate of Dyeing — Saturation

C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per AATCC 16E (20AFU)	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 180°C COS SOP	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 210°C COS SOP	Washing Fastness (ISO 105 C03 1987) PES PA CO WO	Perspiration Fastness (ISO 105-E04) Acidic PES PA CO WO	Perspiration Fastness (ISO 105-E04) Alkaline PES PA CO WO
	HT							
	CD							
	PT							
Disp. Red 73	S			4-5	4	4-5	4-5	4-5
	LS	3-4	5-6			3-4	3-4	3-4
	S					4-5	4-5	4-5
				4	3-4	3	3	3
Disp. Red 364	S			3-4	3	4-5	4-5	4-5
	S	3	5			3	3	3
	NS					4-5	4-5	4-5
				2-3	1-2	4	4-5	4-5
	S			4-5	3-4	4-5	4-5	4-5
	LS	1-2	3-4			3	3	3
	S					4-5	4-5	4-5
				3-4	2-3	4	4	4
Disp. Red 277	S			4-5	4	4-5	4-5	4-5
	LS	2-3	4-5			3	3	3
	S					4-5	4-5	4-5
				4	3	4	4	4
Disp. Red 343	S			5	4-5	4-5	4-5	4-5
	NS	2-3	5			4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4
Disp. Red 343	S			5	4-5	4-5	4-5	4-5
	NS	2-3	5			4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4
Disp. Red 60	S			4	2-3	4-5	5	5
	S	4-5	6-7			4	4-5	4-5
	NS					4-5	5	5
				2-3	2	4-5	4-5	4-5

Disp. Rubine GFL 200% SE

Disp. Lumi. Pink 5BN 200% E

Disp. Luminius Red J 100% SE

Disp. Red G 100% SE

Disp. Red F3BS 100% S

Disp. Red F3BS 150% S

Disp. Red FB 200% E

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties							General Properties							Dyeing Properties				Printing Properties				
Rubbing Fastness (ISO 105X12 1987) Dry	Bleaching Peroxide (ISO 105 No.2 1987) PES PA CO WO	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene COS SOP	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105 X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	Stability to pH PH-4.5 100% (Control) pH 3 ~ 9	Wool Reserve 98°C 120°C	Cotton Reserve 98°C 130°C	Metal Ion Sensitivity Fe^{+2} Cu^{+2}	Metamerism (D 65 Control) TL84 CWF A Rmk	Affinity to other Fibre (At 100°C) Ace Nyl Acr	Effect of water hardness (As Ca++, Mg++)	Stripping A B	Suitability for Yarn Fabric Fibre	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Pressure Steaming	High Temperature Steaming	Discharge ability Zn Sulfoxylate Formaldehyde	Discharge ability Na Sulfoxylate Formaldehyde	Thermosol (Optimum Fixing Temp)
Wet																						
4-5	4-5	4-5					100	3-4	4-5	◯	Y	H	◉	5	S							
	3-4		4-5	5	G	3	80				BD	H			S	G	125 - 130°C	NS	S	S	D	D*
	4-5						60			◯	Y	M			S							190 - 200°C
4	4	4-5						2	4		(L)			1								
4	4-5	3-4					100	1-2	3	◯	Y	L	◉	4-5	NS							
	4		2-3	4-5	G	2-3	90				Y	M			S	G	129 - 131°C	NS	LS	NS	ND	ND
	4-5						70			◯	Y	L			NS							NS
4	4	3-4						1-2	3-4		(H)			2-3								
4	4-5	4-5					80	2-3	4	◯	MY	H	◉	4	S							
	3-4		4	3	G	2-3	100				MY	H			S	M	129 - 131°C	S	S	S	ND	ND
	4-5						90			◯	Y	L			S							190 - 200°C
4	4	4-5						2	4		(H)			2								
4-5	4-5	4-5					80	2-3	4	◯	MY	H	◉	4	S							
	3-4		4	3	G	3	100				MY	H			S	G	129 - 131°C	S	S	S	ND	ND
	4-5						90			◯	Y	M			S							190 - 200°C
4-5	4	4-5						2	4		(H)			2								
4-5	4-5	5					100	3-4	4-5	◯	Y	H	●	5	S							
	4		4-5	5	G	3-4	100				BI	H			S	G	129 - 131°C	S	S	S	D	D
	4-5						100			◉	Y	M			S							200 - 210°C
4-5	4-5	4-5						2-3	4		(M)			2-3								
4-5	4-5	5					100	3-4	4-5	◯	Y	H	●	5	S							
	4		4-5	5	G	3-4	100				BI	H			S	G	129 - 131°C	S	S	S	D	D
	4-5						100			◉	Y	M			S							200 - 210°C
4-5	4-5	4-5						2-3	4		(M)			2-3								
4	4-5	4-5					100	3-4	4-5	◯	GD	H	◉	4-5	NS							
	4		4-5	5	M	3	100				D	H			S	M	120 - 125°C	NS	NS	NS	ND	ND
	4-5						90			◯	MY	L			NS							NS
4	4-5	4-5						3	4		(H)			1								

Disperse Dyes

Dyeing on Polyester

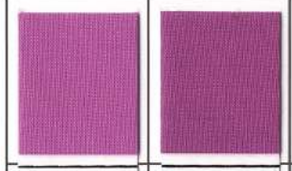
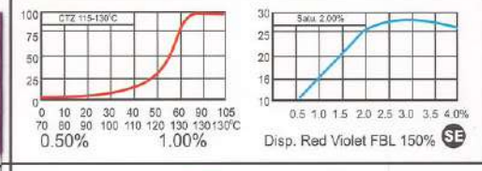
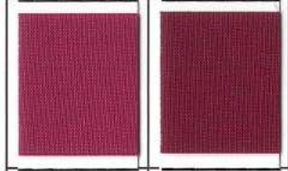
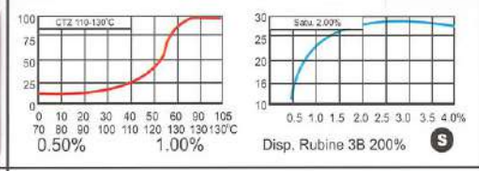
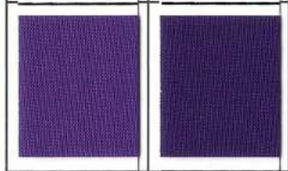
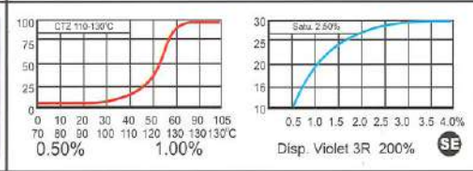
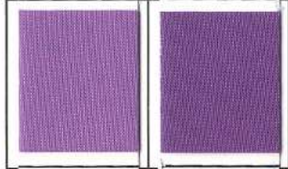
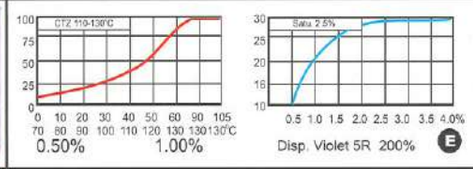
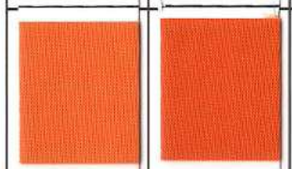
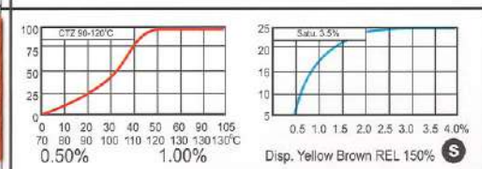
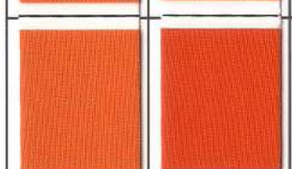
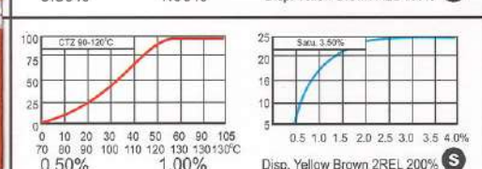
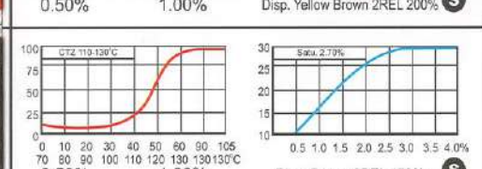
Rate of Dyeing — Saturation

C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per AATCC 16E (20AFU)	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 180°C	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 210°C	Washing Fastness (ISO 105 C03 1987)	Perspiration Fastness (ISO 105-E04) Acidic	Perspiration Fastness (ISO 105-E04) Alkaline
	HT			COS	COS	PES	PES	PES
	CD					PA	PA	PA
	PT			SOP	SOP	CO WO	CO WO	CO WO
Disp. Red 167	S	4	6-7	5	4-5	4-5	4-5	4-5
	NS					4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4
Disp. Red 167:1	S	4	6-7	5	4-5	4-5	4-5	4-5
	NS					4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4
	S	4-5	6	4	3	4-5	4-5	4-5
	NS					4	4	4
	NS					4-5	4-5	4-5
				3-4	2-3	4	4	4
Disp. Red 13	S	4-5	6-7	5	4-5	4-5	5	5
	NS					4	4	4
	S					4-5	5	5
				4-5	4	4	4-5	4-5
Disp. Red 54	S	4-5	6	5	4-5	5	5	5
	LS					4	4-5	4-5
	S					4-5	5	5
				4-5	4	4-5	4-5	4-5
Disp. Red 50	S	4-5	6	4	3	5	5	5
	S					4	4-5	4-5
	NS					4-5	5	5
				3	2	4-5	4-5	4-5
Disp. Red 1	S	4-5	6	5	4-5	5	5	5
	LS					4	4-5	4-5
	S					4-5	5	5
				4-5	4	4-5	4-5	4-5

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties: Rubbing Fastness (ISO 105x12 1987) Dry	Wet	Bleaching Peroxide (ISO 105 No.2 1987) PES PA CO WO	SOP	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene COS SOP	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105-X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	General Properties: Stability to pH pH-4.5 100% (Control) pH 3	7	9	Wool Reserve 98°C 120°C	Cotton Reserve 98°C 130°C	Metal Ion Sensitivity Fe^{+2}	Cu^{+2}	Metamerism (D 65 Control) TL84 CWF A Rmk	Affinity to other Fibre (At 100°C) Ace Nyl Acr	Effect of water hardness (As Ca++, Mg++)	Stripping A B	Dyeing Properties: Suitability for Yarn Fabric Fibre	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Printing Properties: Pressure Steaming	High Temperature Steaming	Discharge ability: Zn Sulfoxylate Formaldehyde	Discharge ability: Na Sulfoxylate Formaldehyde	Thermosol (Optimum Fixing Temp)
4-5	4-5	4							100	3	4-5	○		Y	H		4-5	S								
	2		4-5	4-5	G	3-4	105						BI	H	●		S	G	129 - 131°C	S	S	S	D	D	200 - 210°C
	4-5						105						MY	L											
4	4-5	4-5								3	4	◉	Ⓗ				1								
4-5	4-5	4							100	3	4-5	○		Y	H		4-5	S								
	2		4-5	4-5	G	3-4	105						BI	H	●		S	G	129 - 131°C	S	S	S	D	D	200 - 210°C
	4-5						105						MY	L											
4	4-5	4-5								3	4	◉	Ⓗ				1								
4-5	4-5	4-5							100	3-4	4	○		St	H		3-4	NS								
	3		4	5	G	3	105						BI	H	◉		S	G	129 - 131°C	S	LS	NS	D*	D*	NS
	4-5						100						Y	L											
4	4	4-5								3	4	○	Ⓗ				1								
4-5	4	4							100	3-4	4-5	○		Y	H		4-5	S								
	2		5	5	G	3-4	105						BI	H	●		S	G	129 - 131°C	S	S	S	D	D	200 - 210°C
	4-5						105						MY	M											
4	4	4								2	4	◉	Ⓗ				1								
4-5	4-5	4-5							100	3-4	4-5	◉		St	H		5	S								
	2-3		4	5	G	3-4	95						D	H	◉		S	G	129 - 131°C	LS	S	S	D	D	200 - 210°C
	4-5						90						BI	L			S								
4-5	4-5	4-5								2-3	4	◉	Ⓜ				1								
4-5	4-5	4-5							100	3-4	4-5	◉		ST	H		3-4	NS								
	2-3		3-4	4-5	G	2-3	100						D	H	◉		S	G	125 - 130°C	S	LS	NS	D*	D*	NS
	4-5						100						MY	L			NS								
4-5	4-5	4-5								2-3	4	●	Ⓗ				1								
4-5	4-5	4-5							100	3-4	4-5	◉		ST	H		5	S								
	2-3		4	5	G	3-4	95						D	H	◉		S	G	129 - 131°C	LS	S	S	D	D	200 - 210°C
	4-5						90						BI	L			S								
4-5	4-5	4-5								2-3	4	◉	Ⓜ				1								

Disperse Dyes

Dyeing on Polyester	Rate of Dyeing / Saturation	C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp)	Sublimation Fastness (ISO 105-P01) 180°C	Sublimation Fastness (ISO 105-P01) 210°C	Washing Fastness (ISO 105 C03 1987)	Perspiration Fastness (ISO 105-E04) Acidic	Perspiration Fastness (ISO 105-E04) Alkaline
				As Per AATCC 16E (20AFU)	As Per ISO 105 B02	Dry heat for 30 Sec.			
			HT			COS	COS	PES	PES	PES
			CD					PA	PA	PA
			PT			SOP	SOP	CO	CO	CO
								WO	WO	WO
		Disp. Violet 26	S			4-5	4	4-5	4-5	4-5
			NS	4-5	6			4	4	4
			S					4-5	4-5	4-5
						4	3	4	4	4
		Disp. Violet 33	S			5	4-5	4-5	4-5	4-5
			NS	4	6			4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4
		Disp. Violet 63	S			4-5	4	4-5	4-5	4-5
			NS	3-4	5-6			3-4	3-4	3-4
			S					4-5	4-5	4-5
						4	3	4	4	4
		Disp. Violet 5	S			4	3	4-5	4-5	4-5
			S	3	5			3	3	3
			NS					4-5	4-5	4-5
						3	2-3	4	4	4
		Disp. Orange 30	S			5	4-5	5	5	5
			LS	4-5	6-7			4	4-5	4-5
			S					5	5	5
						4-5	4	4-5	4-5	4-5
		Disp. Orange 30:1	S			5	4-5	5	5	5
			LS	4-5	6-7			4	4-5	4-5
			S					5	5	5
						4-5	4	4-5	4-5	4-5
		Disp. Brown 1	S			5	4-5	4-5	4-5	4-5
			NS	4	5-6			4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties							General Properties								Dyeing Properties				Printing Properties				
Rubbing Fastness (ISO 105x12 1987)	Bleaching Peroxide (ISO 105 No.2 1987)	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105-X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	Stability to pH PH-4.5 100% (Control)	Wool Reserve	Cotton Reserve	Metal Ion Sensitivity	Metamerism (D 65 Control)	Affinity to other Fibre (At 100°C)	Effect of water hardness (As Ca++, Mg++)	Stripping	Suitability for	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Pressure Steaming	High Temperature Steaming	Discharge ability		Thermosol (Optimum Fixing Temp)
																					Zn Sulfoxylate Formaldehyde	Na Sulfoxylate Formaldehyde	
Dry	PES	COS					pH	98°C	98°C	Fe^{+2}	TL84	Ace		A	Yarn								
Wet	PA CO WO	SOP					↓ ω ↑ 9	120°C	130°C	Cu^{+2}	CWF A Rmk	Nyl Acr		B	Fabric Fibre								
4-5	4-5	4-5					100	3	4	○	ST	H		1-2	LS								
	4		4-5	3-4	G	3-4	100				D	H	○		S	M		S	S	S	ND	ND	190 - 200°C
	4-5						100			◐	MY	L			S								
4-5	4	4-5						3	4		Ⓜ			3-4									
4-5	4-5	4					100	2-3	4	◉	BI	H		5	S								
	4		4	4-5	G	3-4	60				BI	H	●		S	G		NS	S	S	D	D	200 - 210°C
	4-5						30				Y	M			S								
4-5	4	4						2-3	4	○	Ⓛ			2-3									
4-5	4-5	4-5					100	3	4	◉	G	H		2-3	LS								
	4		4	5	G	3-4	100				G	H	●		S	M		S	S	S	D	D	190 - 200°C
	4-5						100				G	L			S								
4-5	4	4-5						3	4	◉	Ⓛ			1									
4	4-5	4-5					100	3	4	●	ST	H		1	NS								
	2-3		4	5	M	3	100				D	H	●		S	G		S	LS	NS	D*	D*	NS
	4-5						100				MY	L			NS								
4	4	4-5						3	4	●	Ⓜ			1									
4-5	4-5	4-5					100	3-4	4-5	◉	Y	H		2-3	S								
	3-4		4-5	4	G	4	95				YD	M	◉		S	G		LS	S	S	D	D	200 - 210°C
	4-5						95				RY	L			S								
4-5	4-5	4-5						2-3	4	◉	Ⓜ			1									
4-5	4-5	4-5					100	3-4	4-5	◉	Y	H		5	S								
	3-4		4-5	4	G	4	95				YD	L	◉		S	G		LS	S	S	D*	D*	200 - 210°C
	4-5						95				RY	L			S								
4-5	4-5	4-5						2-3	4	◉	Ⓜ			1									
4-5	4-5	4-5					100	2-3	4	●	ST	H		4-5	S								
	2-3		4	5	G	3-4	95				D	H	◉		S	G		S	S	S	D	D	200 - 210°C
	4-5						90				Y	L			S								
4	4	4-5						2-3	3-4	◉	Ⓛ			1									

Disperse Dyes

Dyeing on Polyester

Rate of Dyeing — Saturation

C. I. Number	Process	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per AATCC 16E (20AFU)	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) 180°C Dry heat for 30 Sec. COS SOP	Sublimation Fastness (ISO 105-P01) 210°C Dry heat for 30 Sec. COS SOP	Washing Fastness (ISO 105 C03 1997) PES PA CO WO	Perspiration Fastness (ISO 105-E04) Acidic PES PA CO WO	Perspiration Fastness (ISO 105-E04) Alkaline PES PA CO WO
	HT							
	CD							
	PT							
	S			5	4-5	4-5	4-5	4-5
	NS	3-4	6			3-4	4	4
	S					4-5	4-5	4-5
				4-5	4	3-4	4	4
Disp. Green 9	S			5	4-5	4-5	4-5	4-5
	NS	2-3	3-4			4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4
	S			4	3-4	4-5	4-5	4-5
	S	3-4	5			4	4	4
	S					4-5	4-5	4-5
				3-4	3	4	4	4
Disp. Blue 56	S			4	3	4	4	4
	S	4	6			2-3	2-3	2-3
	NS					4-5	4-5	4-5
				3	2	3-4	3-4	3-4
Disp. Blue 56:1	S			4-5	4	4	5	5
	NS	3-4	5-6			3-4	4	4
	S				3	4-5	4-5	4-5
				4		4	4	4
Disp. Blue 60	S			4-5	4	4-5	4-5	4-5
	NS	4-5	6-7			4	4	4
	NS					4-5	4-5	4-5
				4	3	4	4	4
	S			5	4-5	4-5	4-5	4-5
	NS	3	4			4	4	4
	S					4-5	4-5	4-5
				4-5	4	4	4	4

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties							General Properties								Dyeing Properties				Printing Properties				
Rubbing Fastness (ISO 105-X12 1987)	Bleaching Peroxide (ISO 105 No.2 1987)	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105-X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	Stability to pH PH-4.5 100% (Control)	Wool Reserve	Cotton Reserve	Metal Ion Sensitivity	Metamerism (D 65 Control)	Affinity to other Fibre (At 100°C)	Effect of water hardness (As Ca++, Mg++)	Stripping	Suitability for	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Pressure Steaming	High Temperature Steaming	Discharge ability		Thermosol (Optimum Fixing Temp)
																					Zn Sulfoxylate Formaldehyde	Na Sulfoxylate Formaldehyde	
Dry	PES	COS					pH	98°C	98°C	Fe $^{+2}$	TL84	Ace		A	Yarn								
Wet	PA	SOP					3				CWF	Nyl			Fabric								
	CO						7				A	Acr			Fibre								
	WO						9	120°C	130°C	Cu $^{+2}$	Rmk			B									
4-5	5	4-5					90	2-3	4-5	◉	G	H		5	S								
	4-5		4	4-5	G	3-4	80				G	H	◉		S	G	129 - 131°C	NS	S	S	D	D	200 - 210°C
	5						40				RY	L			S								
4-5	3-4	4-5						2-3	4-5	◯	Ⓛ			1-2									
4	4-5	4-5					95	4	4	◯	Bl	M		4	S								
	4		4	4-5	P	4	Nil				Bl	M	◯		S	P	129 - 131°C	NS	NS	S	D	D	200 - 210°C
	4-5						Nil				MG	L			S								
4	4	4-5						4	4	◯	Ⓗ			3									
4-5	5	4-5					95	3	3-4	◉	Bl	H		4-5	LS								
	4-5		4	4-5	G	3-4	90				Bl	H	◉		S	G	129 - 130°C	NS	S	LS	D*	D*	180 - 190°C
	5						80				Bl	M			LS								
4	4	4-5						2-3	3-4	◯	Ⓜ			1									
4	5	4-5					100	2-3	3-4	◯	GB	H		4-5	NS								
	4-5		4	4	M	2-3	100				B	H	◯		S	P	120 - 125°C	S	LS	NS	ND*	ND*	NS
	5						100				R	M			NS								
4	3-4	4-5						2	3-4	◯	Ⓛ			2									
4-5	5	4					100	3	4	◉	G	H		1-2	S								
	4-5		3-4	4-5	M	3-4	100				B	H	◉		S	P	129 - 131°C	S	S	S	D	D	190 - 200°C
	5						100				G	L			S								
4	4	4						3	4	◉	Ⓛ			1									
4-5	5	4-5					100	4	4	◯	St	H		4-5	S								
	4-5		4	3-4	G	3-4	100				R	H	◉		S	G	129 - 131°C	S	S	S	ND*	ND*	190 - 200°C
	5						100				GD	L			S								
4-5	4	4-5						3-4	4	●	Ⓜ			1									
4-5	4-5	4-5					95	2	3-4	◯	Bl	M		3	S								
	4		4	4	M	4	Nil				Bl	M	◉		S	G	130 - 135°C	NS	S	S	ND*	ND*	200 - 210°C
	4-5						Nil				MG	L			S								
4-5	4	4-5						2	4	◯	Ⓗ			1-2									

Disperse Dyes

Dyeing on Polyester

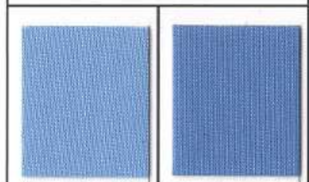
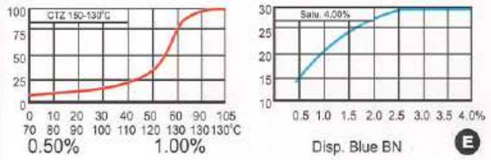
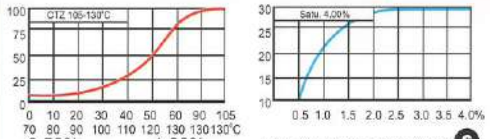
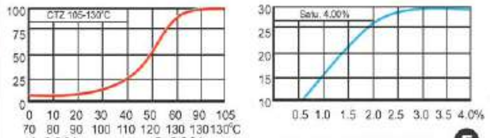
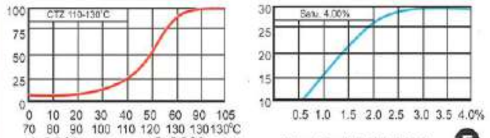
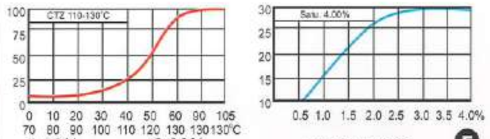
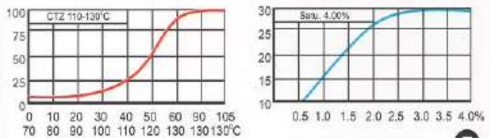
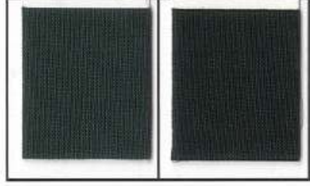
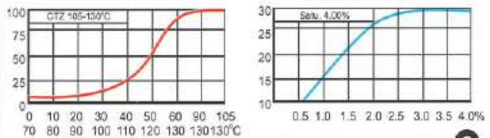
Rate of Dyeing — Saturation

Dyeing on Polyester	Rate of Dyeing / Saturation	C. I. Number	Process	Light Fastness at 1/1 SSD (Xenon Arc Lamp) As Per AATCC 16E (20AFU)	Light Fastness at 1/1 SSD (Xenon Arc Lamp) As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 180°C	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 210°C	Washing Fastness (ISO 105 C03 1987)	Perspiration Fastness (ISO 105-E04) Acidic	Perspiration Fastness (ISO 105-E04) Alkaline
			HT					PES	PES	PES
			CD					PA	PA	PA
			PT			COS	COS	CO	CO	CO
						SOP	SOP	WO	WO	WO
	CTZ 105-130°C; Satu. 5.00%; 0.50% 1.00%; Disp. Blue BRSL 200% (SE)		S			4-5	4	4-5	4-5	4-5
			NS	4	6			4	4	4
			S					4-5	4-5	4-5
						4	3	4	4	4
	CTZ 100-130°C; Satu. 2.00%; 0.50% 1.00%; Disp. Blue GSL 400% (S)	Disp. Blue 165	S			5	4-5	4	5	5
			NS	4	5-6			3-4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4
	CTZ 105-125°C; Satu. 2.50%; 0.50% 1.00%; Disp. Blue DBR 200% (SE)	Disp. Blue 366	S			4-5	4	4	4-5	4-5
			LS	3-4	5-6			3	3	3
			LS					4-5	4-5	4-5
						4	3	4	4	4
	CTZ 115-130°C; Satu. 2.00%; 0.50% 1.00%; Disp. Blue SR 200% (S)	Disp. Blue 354	S			5	4-5	4-5	4-5	4-5
			NS	2-3	3-4			4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4
	CTZ 110-130°C; Satu. 2.50%; 0.50% 1.00%; Disp. Blue SE2RI 200% (SE)	Disp. Blue 183	S			4-5	4	4	5	5
			NS	3-4	5-6			3-4	4	4
			S					4-5	4-5	4-5
						4	3	4	4	4
	CTZ 110-130°C; Satu. 2.50%; 0.50% 1.00%; Disp. Cyanine Blue B 200% (S)		S			5	4-5	4-5	4-5	4-5
			NS	2-3	3-4			4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4
	CTZ 105-130°C; Satu. 4.00%; 0.50% 1.00%; Disp. Navy Blue 3G 200% (S)	Disp. Blue 79	S			5	4-5	4-5	4-5	4-5
			NS	3	5-6			3-4	4	4
			S					4-5	4-5	4-5
						4-5	4	4	4	4

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Fastness Properties: Rubbing Fastness (ISO 105x12 1987) Dry	Rubbing Fastness (ISO 105x12 1987) Wet	Bleaching Peroxide (ISO 105 No.2 1987) PES PA CO WO	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene COS SOP	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105 X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	General Properties: Stability to pH PH-4.5 100% (Control) pH 3 7 9	Wool Reserve 98°C 120°C	Cotton Reserve 98°C 130°C	Metal Ion Sensitivity Fe^{+2} Cu^{+2}	Metamerism (D 65 Control) TL84 CWF A Rmk	Affinity to other Fibre (At 100°C) Ace Nyl Acr	Effect of water hardness (As Ca^{++}, Mg^{++})	Stripping A B	Dyeing Properties: Suitability for Yarn Fabric Fibre	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Printing Properties: Pressure Steaming	High Temperature Steaming	Discharge ability: Zn Sulfoxylate Formaldehyde	Discharge ability: Na Sulfoxylate Formaldehyde	Thermosol (Optimum Fixing Temp)
4-5		5	4-5					100	3-4	4	○	St	H		4-5	S							
		4		4	3-4	G	3-4	95				R	H	◉		S	G	129 - 131°C	LS	S	S	ND*	ND*	190 - 200°C
		5						80				GD	L			S								
4-5		4	4-5						3-4	4	●	Ⓜ			1									
4-5		5	4-5					95	3	4	◉	B	H		4-5	S							
		4-5		4	5	G	3-4	70				B	H	◉		S	M	129 - 131°C	NS	S	S	D	D	200 - 210°C
		5						50				MG	L			S								
4		4	4-5						2-3	4	◉	Ⓜ			1									
4-5		5	4-5					100	3-4	4	◉	G	H		4-5	LS							
		4-5		4	5	G	3	80				G	H	◉		S	M	125 - 130°C	NS	S	LS	D	D	180 - 190°C
		5						40				G	L			LS								
4-5		4	4-5						3-4	4	◉	Ⓛ			1									
4		4-5	4-5					95	4	4	○	BI	M		4	S							
		4		4	4-5	P	4	Nil				BI	M	○		S	P	129 - 131°C	NS	NS	S	D	D	200 - 210°C
		4-5						Nil				MG	L			S								
4		4	4-5						4	4	○	Ⓗ			3									
4-5		5	4					100	3	4	◉	G	H		1-2	S							
		4-5		3-4	4-5	M	3-4	100				B	H	◉		S	P	129 - 131°C	S	S	S	D	D	190 - 200°C
		5						100				G	L			S								
4		4	4						3	4	◉	Ⓛ			1									
4-5		4-5	4-5					95	2	3-4	○	BI	M		3	S							
		4		4	4-5	M	4	Nil				BI	M	◉		S	G	130 - 135°C	NS	S	S	D	D	200 - 210°C
		4-5						Nil				MG	L			S								
4-5		4	4-5						2	4	○	Ⓗ			1-2									
4-5		5	4-5					90	2-3	4	◉	SI	H		4-5	S							
		4-5		4	4-5	G	3-4	50				R	H	◉		S	G	129 - 131°C	NS	S	S	D	D	200 - 200°C
		5						10				GD	L			S								
4-5		4	4-5						2	4	○	Ⓛ			3									

Disperse Dyes

Dyeing on Polyester	Rate of Dyeing / Saturation	C. I. Number	Process (HT / CD / PT)	Light Fastness at 1/1 RSD (Xenon Arc Lamp) As Per AATCC 16E (20AFU)	Light Fastness As Per ISO 105 B02	Sublimation Fastness (ISO 105-P01) Dry heat for 30 Sec. 180°C (COS / SOP)	Sublimation 210°C (COS / SOP)	Washing Fastness (ISO 105 C03 1987) (PES / PA / CO / WO)	Perspiration Fastness (ISO 105-E04) Acidic (PES / PA / CO / WO)	Perspiration Alkaline (PES / PA / CO / WO)
	 0.50% 1.00% Disp. Blue BN (E)	Disp. Blue 3	S NS NS	3-4	5-6	4 3	3 2	4 3-4 4-5 5-4	4 3-4 4-5 5-4	4 3-4 4-5 5-4
	 0.50% 1.00% Disp. Navy Blue EXSF 300% (S)		S NS S	3	5-6	5 4-5	4-5 4	4-5 3-4 4-5 4	4-5 4 4-5 4	4-5 4 4-5 4
	 1.00% 2.00% Disp. Black EXSF 300% (E)		S NS NS	4	6	3-4 3	3 2	4-5 3 4-5 3	4-5 3-4 4-5 3-4	4-5 3-4 4-5 3-4
	 1.00% 2.00% Disp. Black ECO 300% (E)		S NS NS	4	6	3-4 3	3 2	4-5 3 4-5 3	4-5 3-4 4-5 3-4	4-5 3-4 4-5 3-4
	 1.00% 2.00% Disp. Black CCR (E)		S NS NS	4	6	3-4 3	3 2	4-5 3 4-5 3	4-5 3-4 4-5 3-4	4-5 3-4 4-5 3-4
	 1.00% 2.00% Disp. Black R CONC (E)		S NS NS	4	6	3-4 3	3 2	4-5 3 4-5 3	4-5 3-4 4-5 3-4	4-5 3-4 4-5 3-4
	 1.00% 2.00% Disp. Black RLS 200% (S)		S NS S	4	6	5 4-5	4-5 4	4-5 4 4-5 4	4-5 4 4-5 4	4-5 4 4-5 4

DEO PIYU INDUSTRIES
MANUFACTURER & EXPORTER OF DYESTUFFS

Rubbing Fastness (ISO 105x12 1987) Dry / Wet	Bleaching Peroxide (ISO 105 No.2 1987) PES / PA / CO / WO	Dry cleaning (ISO 105 D01 1987) Perchloro ethylene COS / SOP	Decatising at 110°C (ISO 105 E10 1987)	Carbonising with 70% H_2SO_4 (ISO 105 X02)	Migration at 130°C	Thermomigration at 180°C / 30 Sec.	Stability to pH PH-4.5 100% (Control) pH 3 / 7 / 9	Wool Reserve 98°C / 120°C	Cotton Reserve 98°C / 130°C	Metal Ion Sensitivity Fe^{+2} / Cu^{+2}	Metamerism (D 65 Control) TL84 / CWF / A / Rmk	Affinity to other Fibre (At 100°C) Ace / Nyl / Acr	Effect of water hardness (As Ca++, Mg++)	Stripping A / B	Suitability for Yarn / Fabric / Fibre	Levelling at 130°C	Temp. Range in Dyeing	Alkaline Dyeing	Pressure Steaming	High Temperature Steaming	Discharge ability Zn Sulfoxylate Formaldehyde	Discharge ability Na Sulfoxylate Formaldehyde	Thermosol (Optimum Fixing Temp)
4-5 4-5	4-5 4 4-5 3-4	4-5 4-5	4	4-5	G	2-3	100 100 100	3 3	4 4	◉ ◐	G G G Ⓛ	H H L	○	4 1	NS S NS	G	129 - 131°C	LS	NS	NS	D*	D*	NS
4-5 4-5	5 4-5 5 4	4-5 4-5	4	4-5	G	3-4	90 50 10	2-3 2	4 4	◉ ○	SI R GD Ⓛ	H H L	◉	4-5 3	S S S	G	129 - 131°C	NS	S	S	D	D	200 - 210°C
4 4	5 3-4 5 3	4 4	4	4-5	G	2	95 80 70	2-3 2	4 4	◉ ○	St B St Ⓛ	H H L	◉	3-4 1	NS S NS	G	129 - 130°C	NS	NS	NS	D*	D*	NS
4 4	5 3-4 5 3	4 4	4	4-5	G	2	95 80 70	2-3 2	4 4	◉ ○	St B St Ⓛ	H H L	◉	3-4 1	NS S NS	G	129 - 130°C	NS	NS	NS	D*	D*	NS
4 4	5 3-4 5 3	4 4	4	4-5	G	2	95 80 70	2-3 2	4 4	◉ ○	St B St Ⓛ	H H L	◉	3-4 1	NS S NS	G	129 - 130°C	NS	NS	NS	D*	D*	NS
4 4	5 3-4 5 3	4 4	4	4-5	G	2	95 80 70	2-3 2	4 4	◉ ○	St B St Ⓗ	H H L	◉	3-4 1	NS S NS	G	129 - 130°C	NS	NS	NS	D*	D*	NS
4 4	5 3 5 4	4 4	4	4-5	G	3-4	90 60 20	2-3 2	4 4	◉ ○	B B RB Ⓜ	H H L	◉	4-5 2-3	S S S	G	129 - 130°C	NS	S	S	D	D	200 - 210°C