

REACTIVE DYES



VIPUL DYE-CHEM LTD.

MUMBAI - INDIA

REACTIVE DYES



DIAMOND BRAND

VIPACTIVE COLD 'M' / HOT 'H' Dyes

Dyeing with Cold 'M' type & Hot 'H' Dyes :

Cold Brands : Are highly reactive and are employed in dyeing under mild alkaline conditions. (30 - 40°C).

Hot Brands : Are less reactive and are employed both in dyeing and printing under stronger alkaline conditions and high temperature (60-80°C).

Exhaustion (open beck, winch, jigger or Package), pad-Jig fixation, Pad-dry bake, Pad batch and Pad-dry Steam are common methods of application.

Preparation of Goods : Goods should be evenly desized, Scoured and bleached to obtain good result. Pre-treatment with dil. Acetic acid prevents pre-mature fixation of dye.

Dissolving of Dyestuff : The dye is pasted with equal weight of Cold water and dissolved by using warm water at 50°C.

Dyeing Methods :

(A) Exhaust Dyeing : Set the dye-bath at 30-35°C with common salt or glauber's salt, enter the goods Run for 10 min. Add the dissolved dye and run for 30 min. Finally add the dissolved alkali and raise temp. (30-40°C) for Cold brands and (80-90°C) for hot brands. Finally goods are washed off.

Salt and Alkali Requirement for Hot Brand

Depth of Shade (% on weight of goods)	Salt g/l	Soda Ash g/l		
		L:R 15:1	L:R 20:1	L:R 30:1
upto 0.5	30	5	3	2
0.51-1.0	45	5	4	2
1.01-2	60	10	8	4
2.01-4	70	15	10	5
Above 4	90			

Salt and Alkali Requirement for Cold Brand

Depth of Shade (% on weight of goods)	gm/lit	Soda Ash		
		L:R 15:1	L:R 20:1	L:R 30:1
upto 0.5	25	5	3	2
0.51 -2.0	35	5	4	2
2.01 -4.0	45	10	8	4
Above 4	55	15	10	5

(B) Pad-Jig : Goods padded in cold bath containing dye stuffs solution. Material is developed on Jigger by using required quantity of Salt & Alkali as in exhaust method and fixed for 30-60 min.

(C) Pad-Dry-Bake Method :

	<i>Pad with</i>	<i>Bake of</i>
Cold Brand :	Pale Shades : 5-10 g/l Soda bicarb + 2 g/l wetting agent + 2 g/l Sodium Alginate	Dry & Bake at 100-120°C for 1-2 min.
	Full Shade : 100-200 g/l Urea + 5-10 g/l Soda bicarb + 2 g/l wetting Agent + 2 g/l Sodium Alginate.	Dry & Bake at 150°C - 120°C for 1-3 min.
Hot Brand :	10-20 g/l Soda Ash + 50-100 g/l Urea + 2 g/l wetting Agent + 2 g/l Sodium Alginate.	Dry & Bake for 30 Sec. at 200°C or 3 min. at 120°C

(D) Pad-Batch Process : Goods padded in dye solution containing Alkali & Wetting Agent & if necessary Glauber's Salt & batch should be well covered with Polythene Paper to avoid drying.

Cold Brand Short (2 hrs. Batch)	5-30 g/l Soda Ash (equal to weight of dye & 2 g/l wetting Agent).
Cold Brand (24 hrs. Batch)	< 30 g/l dye, 4:1 Soda-bicarb/Soda Ash; > 30 g/l dye, 2:1 Soda-bicarb/Soda Ash. Total Alkali equal to weight of dyestuffs with (5-30 g/l) + 2 g/l wetting Agent.
Hot Brand (24 hrs. Batch)	5-15 g/l Caustic Flakes 10-30 g/l Glauber's Salt + 2 g/l wetting Agent.

(E) Pad-Dry-Steam Method : Goods are padded as per method C. After drying the fabric is steamed for 10-20 Sec. at 100-105°C and washed off.

PRINTING COLD AND HOT BRAND :

Only hot brands are preferred for printing as stated below ; however cold brand can also be printed

	Cold Brand		Hot Brand	
Dye.	40	Parts	40	Parts
Urea	50	"	100	"
Hot Water	300	"	300	"
Sodium Alginate (4% Paste)	585	"	520	"
Resist Salt	10	"	10	"
Soda-bi-carb	15	"	30	"
	<u>1000 Parts</u>		<u>1000 Parts</u>	

Print (with Soda-bi-carb), dry and steam for 10 min. at 102°C. Wash in Cold and Hot water & Soap at boil with neutral Soap for better results.

VIPACTIVE VIPAZOL DYES (VINYL SULPHONE BASED)

INTRODUCTION

VIPACTIVE VIPAZOL DYES possess many salient features, which are summarised below :-

1. Very good light and wash fastness.
2. Easy to apply on cellulosic fibre by normal exhaust, batchwise, continuous and thermofixation process.
3. Suitable for printing by one phase/two phase application method.
4. Give brilliant and attractive shades.
5. Excellent white effect on dyed grounds by discharge and resist printing method.
6. Unified dyes are easily washed off.
7. High stability in dry state and in neutral solution.

Vipactive Vipazol dyes, unlike most of the reactive normal dyes, possess poor affinity for cellulosic fibres in the absence of salt and alkali.

The substantivity of Vipazol dyes can be increased by addition of Glauber's salt or common salt in dyeing processes. The fixation of the dyestuff is carried out by addition of alkali in the dye bath or in the printing paste and by application of heat or by brief steaming. The type and quantity of alkali required depends on the temperature employed and method of fixation.

The entire dyeing or printing process consists of mainly the following 3 stages :-

1. Application of the dyestuff to the fibre.
2. Fixation of the dyestuff on the fibre.
3. Removal of any unfixed dyestuff from the fibre.

PREPARATION OF THE GOODS :-

The goods to be dyed or printed should be thoroughly desized, scoured and preferably mercerised or causticised to retain deep and bright shades. Traces of residual chlorine, peroxide and alkali should be removed by treating the goods with very dilute acetic acid.

DYEING METHOD :-

1. Jigger Dyeing

Procedure:-

Set the dyebath at the required temperature and add well dissolved dye solution over two passages, followed by Glauber salt or common salt over two passages. After two more passages add required amount of alkali solution over two passages and continue dyeing at prescribed temperature for further period of 60-90 minutes depending on the depth of the shade.

Following table gives the quantities of chemicals recommended :-

Dyeing temperature		40°C		60°C		80°C	
Liquor ratio		1 : 2 to 1 : 3	1 : 4 to 1 : 6	1 : 2 to 1 : 3	1 : 4 to 1 : 6	1 : 2 to 1 : 3	1 : 4 to 1 : 6
Glauber salt (Cal.) or common salt	g/l	50	50	50	50	50	50
Caustic soda solution (38° B°e/72° Tw /32.5%)	cc/l	4-6	3-4	3-5	2-3	-	-
+ Soda ash or Trisodium phosphate	g/l	5	5	5	5	25	15-20
	g/l	-	30	30	20-25	-	-
Dyeing period (After minutes final alkali addition)		90		60		60	

Notes :-

- For Vipactive Turquoise Blue G, Vipactive Green 6B, maximum yield is obtained by using soda ash as alkali at 80°C. Use Glauber salt as electrolyte;
- Polyphosphate based alkali is necessary when hard water and common salt are used.
- Trisodium phosphate used as an alkali gives best yield.

2. Winch Dyeing

Procedure :-

Winch dyeing is ideal for the delicately woven and knitted cotton fabrics. In this method the dyestuff and salt are added in the dyebath at room temperature (20°C - 30°C) and alkali is added after 10 - 15 minutes. The bath is then heated to the desired recommended dyeing temperature within 2- 30 minutes and continued dyeing for 60 - 90 minutes at the prescribed temperature.

Following table gives the quantities of different chemicals recommended for various dyeing temperature :-

Liquor ratio		1 : 15 to 1 : 30		
Dyeing temperature		40°C	60°C	80°C
Glauber salt (Cal.) or Common salt	g/l	50	50	50
Caustic soda solution (38° B°e/72° Tw/32.5%)	cc/l	1-2	1	-
+ Soda ash or Trisodium phosphate	g/l	5	5	5-10
	g/l	10-15	5-10	-
Dyeing period (After final alkali addition)		minutes	90	60
			60	60

PADDING PROCESS :-

1. One bath - pad batch process :-

A well scoured, cold fabric is padded at room temperature (25°C - 30°C). As it is desirable to replace the liquor at faster rate, higher speed of fabric padding and smaller capacity trough is recommended. The liquor pick - up should be 60 - 70% for cotton and 90 - 100% for viscose fabric. Speed of the padding should be adjusted in such a way that whole lot of dye solution should be used up within 20 - 30 minutes. Alkali should be added to the dye solution just before commencement of the padding.

1 (a) Long time pad batch process :-

Sodium silicate		Sodium silicate g/l	Caustic soda solution (38° B'e/72° Tw/32.5% w/w) (cc)	
°Be/°Tw	Weight ratio Na ₂ O : SiO ₂		Upto 30 g/l dyestuff	Above 30 g/l dyestuff
37-40/69-77	1 : 3.3	135	13	18
40-47/77-82	1 : 3.3	120	11	16
48-50/100-106	1 : 2.6	100	5	10
58-60/134-142	1 : 2.1	85	-	4

If the Alkali mixer is available, then the short time pad batch process can be used. The speed of the fixation is accelerated with higher dosage of alkali.

1 (b) Short time pad batch process :-

Following table will give the exact quantity of caustic soda and sodium silicate required for dyestuff fixation.

Sodium silicate		Sodium silicate		Caustic soda solution (38° B'e/72° Tw/32.5% w/w) (cc)					
°Be/°Tw	Weight ratio Na ₂ O : SiO ₂	g/l	cc/l	Upto 20 g/l	Upto 30 g/l	Upto 40 g/l	Upto 50 g/l	Upto 60 g/l	70-100 g/l
37-40/69-77	1 : 3.3	130	95	24.0	26.0	29.0	32.0	34.0	39.0
40-42/77-82	1 : 3.3	110	80	25.0	27.5	30.0	33.0	35.0	40.0
48-50/100-106	1 : 2.6	100	65	15.0	18.0	20.0	24.0	25.0	30.0
58-60/134-142	1 : 2.1	90	55	6.5	10.0	12.0	15.0	16.0	22.0

2. One Bath - > Pad - > Dry - > steam method :-

This process is carried out on a padding mangle attached with either hot flue or float dryer. To fix the dyestuff, the dyed, dry material is steamed in the normal continuous steamer for 4 to 7 minutes at 100° - 103°C. The steam should be free from acid.

Following table will help to prepare padding liquor :-

Vipazol dyes	g/l	10	20	30	40	50	50-70
Urea	g/l	0-50	0-50	0-50	50-70	50-75	50-75
Sodium bi - carbonate	g/l	5	10	15	15-18	20	20-25
Resist salt	g/l	10	10	10	10	10	10

3. Pad - > Dry - > Thermofix Process :-

In this method, a padding mangle with attached hot flue or float dryer that allows treatment for 5 minutes, is required. There are two methods :-

1. Soda ash method.
2. Sodium bi-carbonate method.

The pad liquor consists of the following chemicals :-

Dye	g/l	2	10	20	40	60
Urea	g/l	15	30	45	60	80
Soda ash or Sodium bi-carbonate	g/l	8	12	17	25	33
	g/l	12	18	27	36	45

The material is padded in the above liquor at room temperature (25 - 30° C), dried and thermofixed

Temperature	Soda ash process	Sodium bi-carbonate process
100 °C	4 to 6 minutes	5 to 7 minutes
120 °C	2 to 4 minutes	3 to 5 minutes
140 °C	40 to 60 seconds	60 to 90 seconds

The after treatment remains the same as the regular process, as detailed above.

Note :

1. Alkali should be added just prior to padding.
2. The unfixed dye is sensitive to acid vapour. It is advisable to cover goods with polythene sheet to protect them from atmospheric influence before steaming.

DIRECT PRINTING WITH VIPACTIVE VIPAZOL DYESTUFFS

1. Steaming Method :-

Printing Paste recipe :

X	Parts	Vipactive Vipazol dyestuff is mixed with
50-100	Parts	Urea
200	Parts	Water
500	Parts	Thickening (Sodium Alginate)
20	Parts	Sodium bi-carbonate
10	Parts	Resist salt
Y	Parts	Water or thickening and bulk to
1000	Parts	

The above thickening could be replaced by half emulsion thickening as follows :-

Emulsion Thickening :-

500	Parts	Thickening (Sodium Alginate)
100	Parts	Water
10	Parts	Emulsifier
390	Parts	Kerosene
<u>1000</u>	Parts	

Print - dry - steam at 103°C for 10 - 15 minutes in star ager or 5-7 minutes in a continuous steamer - Hot and Cold washing - soap at boil for 15 - 20 minutes with neutral detergent - Finally rinse hot and cold.

2. Cold silicate pad batch method :-

Print paste recipe is same as per steaming method, but the use of alkali is avoided. After printing and drying the fabric is nip padded with 102 - 104° Tw sodium silicate solution ($\text{Na}_2\text{O} : \text{SiO}_2$ 1 : 2.1) and 4 - 6 cc/litre Caustic soda - 72° Tw

The batch is covered with Polythene sheet and kept for 20 hours.

AFTER TREATMENTS

1. Cold rinse with overflow.
2. Neutralising at about 40 °C with 2-3 cc/litre of acetic acid (60%).
(Not for silicate pad method)
3. Hot rinsing with sodium hexametaphosphate 2 - 3 g/l at 60 °C - 70 °C.
4. Soaping at boil with neutral detergent.
5. Hot rinsing/Cold rinsing.

WHITE DISCHARGE PRINTING WITH VIPACTIVE DYESTUFF

Vipazol dyestuff are suitable for preparing wash and light fast discharge grounds. The fabric should be treated with a mild oxidising agent before discharge printing. This will protect the ground from the reductive effect of the printing paste.

Preparation of the white discharge printing paste.

20	Parts	Rongolite C
10	Parts	Titanium dioxide (1:1)
8	Parts	Discharge Salt W/Leucotrop W (BASF)
40	Parts	Thickening
20	Parts	Caustic soda - 38° B'e/72° Tw
2	Parts	Water
<u>100</u>	Parts	

Print - > dry at 90°C -> steam 15 - 20 minutes in a star ager at 100°C - 103 °C. Then the material is rinsed twice in cold water - hot rinse at 40 °C -> soap at 90 °C with a neutral detergent. Finally hot and cold rinse.

RESIST PRINTING UNDER SUPRA DYESTUFF

The printing paste used for Resist printing is highly acidic, the suitable acid resistant thickener should be used. British Gum/Indalca AGBV are acid resistant hence are suitable choice for resist printing.

Printing recipe

100	Parts	Uncooked starch (1 : 1)
100	Parts	Citric acid
10	Parts	Optical Brightner (Resistant to acid)
500	Parts	Thickening
290	Parts	Water/Thickening
<u>1000</u>	Parts	

Print -> dry -> nip pad through following dye solution at room temperature (25 - 30 °C)

X	Parts	Vipazol dyestuff
200	Parts	Boiling water
100	Parts	Urea
10	Parts	Resist salt
60	Parts	Sodium bi-carbonate (just before padding)
Y	Parts	Water
<u>1000</u>	Parts	

Note :-

2 g/l of Sodium alginate is advisable to avoid the risk of migration during the drying process. After padding -> dry -> steam at atmospheric pressure for 5 - 7 minutes in a continuous ager.

After treatment is given as follows :-

Cold rinse with over flow, hot rinse, soaping with neutral detergent near boil and finally hot and cold rinse.

VIPACTIVE 'HE' DYES

These dyes belong to a new class of Vipactive Dyes having high substantivity and superior exhaustion. HE dyes are recommended for dyeing of cellulosic material by batchwise method on jigger, winch or open vat etc. for obtaining brighter shades.

HE dyes are mainly suited for dyeing of mixed shade as they are less sensitive to variation in Liquor to goods ratio and concentration of electrolytes in the dyebath as compared to cold or hot brands.

The main advantage of HE dyes are excellent build-up, high fixation, good compatibility, consistency of colour yield and excellent wet fastness properties.

HE dyes are applied by same method using same recipe as used for dyeing of Hot brand of dyes mainly by exhaust on winch or Jigger machines.

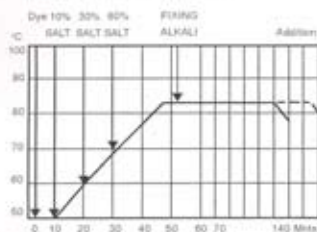
These dyes are specially made for exhaust dyeing under long liquor ratio. They are less sensitive to time, temperature and concentration of salt. Dyeing results are even and fastness properties are better. These are suitable for dyeing hosiery, knitwear and blends where cellulose part of polyester/cellulose is to be dyed.

These dyes are applied by exhaust method on winch or jigger machines. These dyes are not suitable for printing. The application is exactly as per hot brands. 'HE' dyes, because of their high exhaustion and fixation properties are recommended for cost reduction.

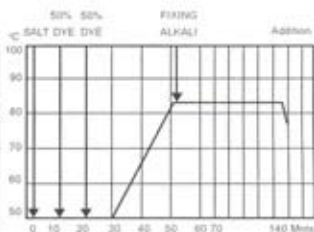
'HE' dyes are suited for dyeing mixed shades as they are less sensitive to variation in liquor ratio and concentration of salt.

Method of Application

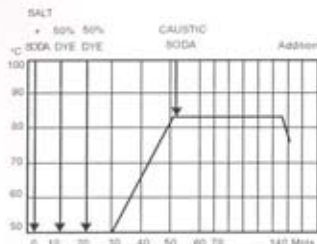
1. Piece Goods Dyeing



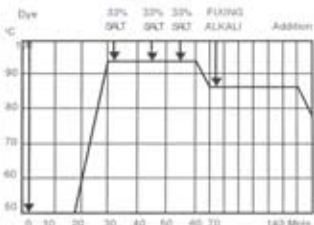
Standard method for application to all types of piece goods on jiggers.



Suitable for dyeing unmercerised and mercerised material on circulating machines or winches.

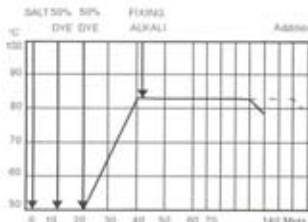


Suitable for dyeing unmercerised material on circulating machines.

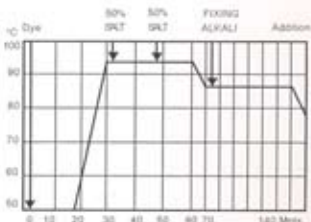


Suitable for mercerised piece goods on winches.

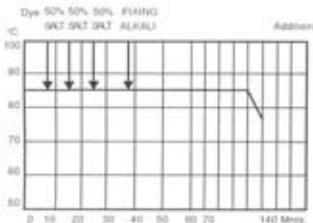
2. Yarn Dyeing



Suitable for dyeing unmercerised yarn in Package and Beam dyeing machine.



Suitable for dyeing mercerised yarn in hank form on hank dyeing machine and all other materials which are difficult to penetrate for dyeing on hank, Package and Beam dyeing machine.



Suitable for dyeing unmercerised yarn in hank form on hank dyeing machine and mercerised yarn on Package or Beam dyeing machine.

Salt and Alkali Requirements :

Depth of shade	Upto 0.5%	5% to 1.0%	1.0% to 2.0%	2.0% to 4.0%	4.0% and above
Salt g/l	30	45	60	70	90
TSP or Soda	10	15	15	20	20
Ash g/l					

VIPACTIVE BIFUNCTIONAL DYE STUFF

The Vipactive Bifunctional Dyestuffs are used for Exhaust dyeing at a low temperature. These dyestuffs have very high exhaustion properties, better levelling properties and a very good alkaline stability. These dyes can also be applied by cold pad batch method, hence these dyes are real energy saving dyes.

DYEING METHODS

- (i) **EXHAUST DYEING** : Dyestuff is dissolved in water and run for 20 mts. Salt is introduced and temperature raised to 60°C in about 20 mts. Alkali is introduced at 60°C and temperature is maintained for 60 mts.

The following parameter is applied :

Glauber's Salt - 50 gm/l

Soda Ash - 20 gm/l

- (ii) **PADDING METHOD** :

(1) Pad [Vipactive Bifunctional Dyes + Urea + Sodium Silicate 85 gm/l (134-142°Tw Na₂O : SiO₂ : 1 : 2.1) + Caustic Soda 33% 4 gm/l] - Batch (20 hours) - Wash.

(2) Pad [Vipactive Bifunctional Dyes + Urea + NaHCO₃ (10 - 20 gm/l)] - dry-normal steam for 5 mts. or Thermofix at 140°C for 4 mts. - Wash.

These dyestuff can also be used for printing by steaming and/or by Silicate method.

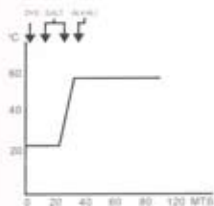
(i) Print (dyestuff + alkali) - dry - steam.

(ii) Print (dyestuff + alkali) - dry - Thermofix at 150°C for 3 to 5 min.

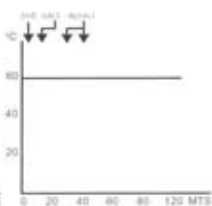
(iii) Print (dyestuff) - dry - Nip pad through Sodium Silicate - Batch(20 hours)

The print is washed by cold water to remove unfixed dyes and then washed with suitable detergent then washed with cold water till it is colourless.

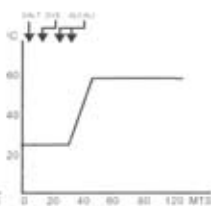
1. Normal method



2. Constant temperature method



3. "All-in" method



AFTER TREATMENT :

A thorough soaping and washing is required to clear off the unfixed dye and to obtain maximum fastness properties and brightness of shade.

Washing off is done by thoroughly rinsing in cold water followed by hot water.

Then it is soaped at boil for 15 minutes using 2 gpt detergent. Finally again it is rinsed in hot water and cold water subsequently.

ABBREVIATIONS :

Light : 1 to 7 in increasing order where 7 represent highest fastness.

Washing & others : 1 to 5 in increasing order where 5 represent highest fastness.

Dischargeability: G - Good
M - Moderate
P - Poor

Substantivity : O Suitable
Δ Not suitable
L - Low
M - Medium
H - High

This information mentioned herein is provided in good faith but without warranty. It is the responsibility of the user to test our products to their suitability for any application.

No statement is intended or should be construed as a recommendation to infringe any patent and the responsibility to observe any such patent right rest with the user.

(without Guarantee)

DIAMOND BRAND

VIPACTIVE "M"
DYES
(Dichloro Triazine)

4% Dyeing

4% Printing



YELLOW M4-G

* Yellow 22



YELLOW M8G

* Yellow 86



YELLOW M4R

* Orange 14



ORANGE M2R

* Orange 4



RED M5B

* Red 2



RED M8B

* Red 11

Light	Fastness to			Substantivity	Dischargeability	Solubility in amines at 50°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
6	4	5	1	M	M	80
6-7	5	5	1	M	G	100
5	4-5	4	1	M	P	80
4	5	4	4	M	P	100
4-5	4-5	3-4	1	H	P	80
4-5	4-5	2	3	H	P	60

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "M"
DYES
(Dichloro Triazino)

4% Dyeing

4% Printing



MAGENTA MB
* Violet 13



VIOLET C4R
Violet 14



TURQ. BLUE MGN
* Blue 140



BLUE M4GD
* Blue 168



BLUE MR
* Blue 4



BLUE M2R
* Blue 81

Light	Fastness to			Substantivity	Dischargeability	Solubility in glycol at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
4-5	5	4-5	1	H	P	50
4	5	4	3	M	P	80
5	4	4	1	M	P	80
4-5	4	4	1	M	P	80
5	4-5	4	1	M	P	80
5	4	4	3	M	P	80

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "H"
DYES
(Monochloro Triazine)

4% Dyeing

4% Printing

**YELLOW H4G**

* Yellow 18

**GOLDEN YELLOW HR**

* Orange 12

**ORANGE H2R**

* Orange 13

**RED H8B**

* Red 31

**RED 6BX**

* Red 76

**MAGENTA HB**

* Violet 13

Light	Fastness to			Substability	Dischargeability	Solubility in pyridine at 30°C
	Washing (Effect)	Perpiration Stain	Hypochlorite (Effect)			
6-7	4-5	4-5	1	L	G	120
6	4-5	5	3	M	P	120
4-5	5	4	4	M	P	130
4-5	4	4	4	H	P	100
5	4	5	2	M	P	80
6	4	4	2	M	P	80

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "H"
DYES
(Monochloro Triazine)

4% Dyeing

4% Printing



PURPLE H3R

* Violet 1



NAVY BLUE RX

* Blue 59



BLUE 5RH

* Blue 13



TURQ. BLUE H5G

* Blue 25



RED BROWN H4R

* Brown 9



BLACK HN

* Black 8

Light	Fastness to			Substantivity	Dischargeability	Solubility in ml/100g at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
6-7	5	4	4	L	P	100
3	3-4	4-5	1	H	P	60
6	5	4	1	M	P	90
5-6	4-5	3	3-4	H	P	90
5	5	4-5	4-5	L	P	90
6	4-5	3	4	L	P	80

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "H"
DYES (New 'P' Type)
(Monochloro Triazine)

4% Dyeing

4% Printing



YELLOW P6G
* Yellow 95



GOLDEN YELLOW P3R
* Orange



ORANGE P4R
* Orange 35



RED PB
* RED 24



RED P3B
* RED 45



BROWN P6R
* Brown 11

Light	Fastness to			Substantivity	Dischargeability	Solubility in gm/litre at 50°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
6-7	5	4-5	1	L	M	90
6	4-5	5	3	M	M	120
5	4	3-4	2	M	M	80
5	4-5	5	2	H	M	80
5	4-5	3-4	2-3	M	M	80
5	4	4-5	2	M	M	80

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "H"
DYES (New 'P' Type)
(Monochloro Triazine)

4% Dyeing

4% Printing



BLUE P3R

* Blue 49



NAVY BLUE

* Black 39



BLACK PGR

* Black mix

Light	Fastness to			Substantivity	Dischargeability	Solubility in gm/litre at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
5	4-5	3	3	M	M	80
5-6	5	5	1	M	M	80
5	5	4-5	2	H	G	80

* C. I. Reactive

DIAMOND BRAND

VIPAZOL

"VINYL SULPHONE BASED"

DYES

4% Dyeing

4% Printing



YELLOW FG

* Yellow 42



YELLOW GR

* Yellow 15



YELLOW GL

Yellow 37



YELLOW RNL

* Orange 107



ORANGE 2R

* Orange 7



ORANGE 3R

* Orange 16

Light	Fastness to			Substantivity	Dischargeability	Reliability in practice at 30°C
	Washing (Effect)	Persepiration Stain	Hypochlorite (Effect)			
5	5	5	1	L	G	100
6	5	5	1	H	G	100
6	4-5	4-5	1	M	M	80
6	5	5	1	H	G	100
5-6	5	5	1	H	G	100
5-6	5	5	1	H	G	80

* C. I. Reactive

DIAMOND BRAND
VIPAZOL
"VINYL SULPHONE BASED"
DYES

4% Dyeing

4% Printing



GOLDEN YELLOW R
 * Yellow 77



GOLDEN YELLOW G
 * Yellow 17



GOLDEN YELLOW RR
 * Orange 78



RED C2G
 * Red 106



RED 5B
 * Red 35



BLUE BB
 * Blue 220

Light	Fastness to			Substantivity	Dischargeability	Solubility in water at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
5	4-5	5	3	H	G	100
6	5	5	1	H	G	100
5-6	5	5	1	H	G	100
4	5	5	1	L	G	100
4	5	5	1	M	G	100
5-6	4-5	3-4	2	M	M	80

* C. I. Reactive

DIAMOND BRAND
VIPAZOL
"VINYL SULPHONE BASED"
DYES

4% Dyeing

4% Printing



RED HRBL
 * Red 198:1



BLUE R
 * Blue 19



VIOLET 5R
 * Violet 5



BLUE 3R
 * Blue 28



TURQ. BLUE G
 * Blue 21



GREEN 6B
 * Blue 38

Light	Fastness to			Substantivity	Dischargeability	Solubility in amine at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
5-6	4-5	5	2-3	H	P	100
7	4-5	4-5	4	H	P	100
6-7	4	4-5	3-4	H	M	100
6-7	4	3-4	4-5	H	M	100
6	4-5	5	3-4	H	G	100
7	3-4	4	2-3	H	M	100

* C. I. Reactive

DIAMOND BRAND

VIPAZOL

"VINYL SULPHONE BASED"

DYES

4% Dyeing

4% Printing



BLUE H2GL

* Blue 203



BROWN GR

* Brown 18



BLACK HBL

* Black 31



BLUE RGB

* Black 250



BLACK B

* Black 5



DEEP BLACK N-150

Light	Fastness to			Substantivity	Dischargeability	Solubility in gm/litre at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
6	6	5	2-3	H	G	100
6	5	4-5	1	H	G	80
5-6	4-5	5	2	H	M	100
6	4-5	5	2	H	G	100
5	4-5	5	1	H	G	120
5	4-5	4-5	2-3	H	G	120

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "HE"
"HIGH EXHAUST"
DYES

1% Shade

3% Shade



YELLOW HE6G

* Yellow 135



YELLOW HE4G

* Yellow 81



GOLDEN YELLOW HE4R

* Yellow 84



ORANGE HE R

* Orange 84



RED HE3B

* Red 120



RED HE7B

* Red 141

Light	Fastness to			Substantivity	Dischargeability	Solubility in am/one at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
5	4	4	1	H	G	100
5-6	5	4-5	4-5	H	G	150
5	5	4-5	4	H	G	100
4-5	5	3-4	3	H	M	80
5	5	4-5	3	H	P	140
4-5	4-5	4-5	3-4	H	P	80

* C. I. Reactive

DIAMOND BRAND

VIPACTIVE "HE"
"HIGH EXHAUST"
DYES

1% Shade

3% Shade



RED HE8B
* Red 152



TURQ. BLUE HA
* Blue 71



NAVY BLUE HER
* Blue 171



GREEN HE4B
* Green 19



BLUE HEGN
* Blue 198



BLACK HERD
* Blue 160

Light	Fastness to			Substantivity	Dischargeability	Solubility in amine at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
4-5	4-5	4-5	3-4	H	P	80
6	4-5	4-5	4	H	P	100
5	4-5	4-5	2	H	G	150
4-5	4-5	4-5	2	H	M	60
5	4-5	5	1	H	P	90
6	4-5	4.5	3	H	M	80

* C. I. Reactive

DIAMOND BRAND
VIPACTIVE "BI-FUNCTIONAL"
'ME' DYES

1% Shade

3% Shade



BRILL. YELLOW 4GF 150%

* Yellow 160



YELLOW 3RF 150%

* Yellow 145



ORANGE 2RF 150%

* Orange 122



RED F4BL 150%

* Red 195



RED F6BL 150%

* Red 250



RED 2GF

* Red 222

Light	Fastness to			Substantivity	Dischargeability	Solubility in water at 30°C
	Washing (Effect)	Perspiration Stain	Hypochlorite (Effect)			
6-7	4-5	4-5	2	H	G	100
6	4	5	2	H	G	120
5	5	5	4	H	M	100
5	4	5	3	H	M	150
5	4-5	4-5	4	H	M	100
4-5	4-5	4	3-4	H	M	100

* C. I. Reactive

DIAMOND BRAND
VIPACTIVE "BI-FUNCTIONAL"
"ME" DYES

1% Shade

3% Shade



RED GF

* Red 223



BLUE BRF

* Blue 221



NAVY BLUE F2GL

* Blue 194



NAVY BLUE BF

* Blue 222



BLACK HFGR

*



BLACK WNN

* Black (Mix)

Light	Fastness to			Substantivity	Dischargeability	Stability in gloves at 100°C
	Washing (Effect)	Periapical Stain	Hypochlorite (Effect)			
5	4	4	2	H	M	120
6-7	4-5	5	2	H	G	100
6	6	5	1	H	G	80
4-5	5	4	2	H	M	100
4-5	4-5	4-5	1	H	M	120
5-6	4-5	4-5	2	H	G	100

* C. I. Reactive

VIPUL DYE-CHEM LTD.

**MANUFACTURERS AND EXPORTERS OF DYES, INTERMEDIATES, PIGMENTS,
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