# ARLOVAT

## MICRO DISPERSE POWDER

ARL

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# INTRODUCTION

## 1. GENERAL

Arlovat dyestuffs which belong to the 'Vat' group of dyes are employed wherever shades of highest fastness properties are required. Arlovat dyestuffs are particularly suitable for the dyeing of cellulosic fibers. But it can also be applied equally well for the other textiles such as Viscose, Rayon, Jute, Linen and Natural Silk with certain modification of the dyeing process.

Arlovat Dyes are used for all outlets where the highest levels of fastness are required such as:

- Workwear and uniforms

  Severe laundry washing (hypochlorite) and long exposure to daylight: Contract workwear; uniforms for armed forces, police, fire, postal and nursing services.

- Clothing and household articles

  Frequent washing, often followed by drying in direct sunlight:

  Office wear, shirting, sportswear, velour, toweling, bed linen, table linen.

- Furnishings

  High fastness to light:

  Curtaining and chair covers

## 2. COMMERCIAL FORMS

Arlovat dyestuffs are supplied in various forms and differ in tinctorial strength and fineness of dispersion. Such as-

### 2.1 Powder, Conc., Highly Conc. & Ultra Conc. Brands

These brands have poor fineness of dispersion and are recommended for leuco Vat dyeing only.

### 2.2 Microfine brands

These brands possess uniform particle-fineness and is suitable for high-speed continuous dyeing on account of fast rate of reduction. They are also suitable for leuco vat dyeing.

## 3. DYES CLASSIFICATION

Dyes are classified into three groups for dyeing, depending upon the following properties in exhaust dyeing:

- The temperature for optimum yield
- The concentration of caustic soda and sodium hydrosulphite required
- The effect of added electrolyte on the exhaustion properties.

| Method | Optimum Temperature | Alkalinity of bath | Electrolyte addition | Comment |
|---|---|---|---|---|
| 1 | 55-75°C | High | No | High affinity dyes |
| 1 Special | 60-75°C | High | No | For Blacks |
| 2 | 50°C | Medium | Advised | Medium affinity |
| 2 | 20-30°C | Medium | Yes | Low affinity |

The lines of demarcation are not clearly defined and most dyes will also give yields by method different from the optimum (see pattern pages). When dyeing mixture shade: the optimum method for the major components of the recipe should be used.

## 4. METHOD OF DYEING

### 4.1 General

Arlovat dyes are supplied in water-insoluble form. When applying them to cellulosic textiles it is necessary at some stage of processing to convert them into their soluble "Leuco" compound by means of sodium hydrosulphite (reducing agent) in the presence of caustic soda. At the end of the dyeing process, the insoluble form is regenerated by an oxidation, after treatment to the fiber.

### 4.2 Quality of Water

It is essential to prepare the stock vat and dye bath with soft or softened water, especially when dyeing in circulating liquor machines. If only hard water is available, it must be treated by the addition of sequestering agents i.e., use di-or tri-sodium phosphate, tetrasodium pyrophosphate or sodium hexameta phosphate, 0.5-2 g, depending on the hardness of the water.

### 4.3 Preparation of a Stock Vat

In all but a few cases (please see notes on patten pages) Arlovatdyesare reduced in concentrated volume at the recommended vatting temperature. Acra Conc and Powder Fine brands are first pasted with water (which may contain Turkey Red Oil) before the addition of water for vatting. Micro Disperse brand sare dispersed by sprinkling into water kept at the vatting temperature, or by making a paste with cold or warm water before diluting.

| | |
|---|---|
| Arlovat Micro Disperse dye (or its equivalent in Powder Fine or Acra Conc) dispersed in | 2 parts |
| Water | 100 parts |
| Caustic soda 38° Be (70°TW) | 6.25 parts |
| Sodium hydrosulphite | 2.5 parts |

The stock vat is added in two or more portions to the dyebath which has been set previously with caustic soda and sodium hydrosulphite as indicated in the table (see section 12).

### 4.4 Vatting in the Dyebath

Wherever indicated (see pattern pages) it is necessary toreduce the Arlovat dye in the total volume of the dyebath.For this purpose, dye powder is first pasted or dispersed and added to the dyebath prepared with caustic soda and water atthe vatting temperature. Sodium hydrosulphite is finally sprinkled in with stirring and the bath maintained at the vatting temperature for 10-15 minutes before commencing the dyeing operation.

### 4.5 Pre-pigmentation Methods

In order to obtain superior level-dyeing properties for particularly difficult materials or machinery conditions, it is common practice to work the goods in the unreduced dispersion of the Arlovat dyes prior to the addition of the required caustic soda and sodium hydrosulphite to effect

reduction in the dyeing vessel. Hot or cold pre-pigmentation may be used. Further details of these procedures are given in the next sections of this shade card.

### 4.6 Electrolyte

Sodium sulphate (Glauber's salt) or common salt are used to improve the exhaustion of Method 2 dyes. The first addition of salt should be made in a small portion (25-30% of the total addition) only after dyeing for 30 minutes.

### 4.7 Wetting Agents

An addition of a suitable wetting agent is valuable in ensuring uniform impregnation of the goods, in assisting penetration and achieving level dyeings. Calsolene Oil H-S wetting agenthave been found to be effective for this purpose under practical working conditions. Avoid using non-ionic wetting agents.

### 4.8 Levelling Agents

When dyeing with high affinity method-1 dyes, agents which minimise the initial "strike" of the dye in the early stage of dyeing, but which do not affect the ultimate yield of the dyeing are preferred in many cases.

## 5. METHOD OF OXIDATION

### 5.1 Preliminary Treatment

After the appropriate period of dyeing in the reduced state, remove excess dye liquor from the goods by squeezing, suction, hydroextraction or draining. It is general practice inany case to rinse them with cold water as the first step in the process of oxidation.

### 5.2 Chemical Oxidation

The most widely - used chemicals for oxidising vat dyeing are the peroxygen compounds, e.g., sodium perborate, sodium per carbonate and hydrogen peroxide. It is essential to use one of these agents for oxidation of the bright blues based on indan throne.

## 6. SOAPING

The after treatment of a vat dyeing is completed by 'soaping' at the boil. This removes loose dye from the surface of the material& also more importantly develops the full shade & fastness properties of the dyeing by increasing the crystallisation of the dye in the fiber.

Dyes which show a marked change of shade require a thorough soaping treatment at the boil in order to achieve a stable reproducible shade.

Soaping is carried out in a boiling bath containing:

Lissepol D Paste 2-3 g/l(with soda ash2 g/l for Arlovat Blues)

## 7. PREPARATION OF CELLULOSIC MATERIALS BEFORE DYEING

### GENERAL CONSIDERATIONS

Efficient preparation is essential in order to obtain high quality dyeing with good levelness and maximum fastness properties. Many dyeing faults can be traced due to inadequate preparation.

The removal of the natural impurities and of the added sizes and lubricants from the cellulosic fiber depends not only upon the use of efficient enzyme and/or chemical treatments but also on the thorough subsequent washing and rinsing.

## 8. YARN DYEING

### 8.1 Hanks

Dyeing of hanks with vat dyes is carried out on mercerised/unmercerised cotton. Dyeing is carried out by theleuco method or by semi-pigmentation method, starting at the normal dyeing temperature.

### 8.2 Hand Becks

In this equipment, the yarn is hung on bent sticks which allow the yarn to be held under the surface of the liquor. The previously wetted and squeezed hanks are introduced into the prepared bath and given several quick rotations to obtain uniform impregnation. The yarn is subsequently moved more slowly and rotated periodically whilst dyeing.

On completion of dyeing, the hanks are squeezed then rinsedin cold water which has been added with little sodium hydrosulphite 0.2-0.3 g/l. Two further rinses in cold water are given before oxidation with chemicals followed by 'soaping'(see Sections 5 & 6).

### 8.3 Yarn on beams or in package form

#### 8.3.1 Leuco process

The dye is vatted at 50-60°C for 10 minutes, as described in section 4.3, before addition to the machine. The remaining quantities of caustic soda and sodium hydrosulphite, calculated from the table for total dye bath concentration are added to the machine containing the pre-wetted, scoured yarn, the whole being allowed to circulate for 10 minutes at the dyeing temperature.

The leuco dye is added using a filter, in two to four portions. The additions should be made during outside-to-inside liquor flow.

Dyeing is continued for 45-60 minutes. Any salt required for method 2 dyes is first made up into a solution with water, then added in portion during this time. Rinse and oxidise as described in section 8.6

#### 8.3.2 Dyeing at elevated temperatures

A much-improved level dyeing performance is obtained by carrying out the dyeing at 80°C.This is especially recommended for mercerized cotton and viscose. The additions of sodium nitrite or glucose,2-5 g/l, should be made to the bath for dyes which are sensible to over-reduction. The addition is made before the temperature is raised above 60°c.

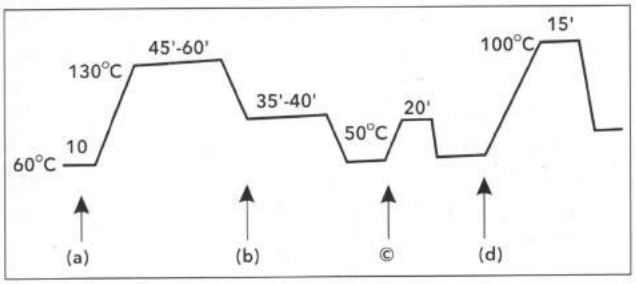
Rinse and oxidise as described in section 8.6.

### 8.4 Polyester/Cellulose blends

#### 8.4.1 Two-bath dyeing method

The polyester is first dyed at 130°C with Disperse dyes in the conventional manner. The cellulosic fiber is then dyed in a second bath using the pigmentation method. Rinsing, oxidation and 'soaping' follow in the usual manner.

#### 8.4.2 One-bath dyeing process




| | | |
|---|---|---|
| a) | Disperse dye | X g/l |
| | Arlovat dye | Y g/l |
| | Dispersing agent | 1 g/l |
| | Acetic acid (80%) | 0.5 m/l |
| b) | Caustic soda<br>Sodium hydrosulphite<br>Sodium nitrite or glucose | } as required |

c) Hydrogen peroxide 130 vol 2 ml/l
Acetic acid (80%) 0.5 m/l

d) Lissapol D" 1-2 g/l

Concentration of caustic soda and sodium hydrosulphite should be calculated on the percentage weight of dye on total weight of yarn.

" For bright Blue shades also add soda ash 2 g/l.

## 9. JIG DYEING

### 9.1 General method

The fabric must be loaded evenly on to the jig in a crease freecondition. The fabric should be efficiently and uniformlyscoured or pre-wetted before starting the dyeing.

- Prepare a blank dyebath at the required dyeing temperature with caustic soda and sodium hydrosulphite and with Calsolene Oil H-S2 g/l. Run one end through this liquor.
- Add the reduced vat dye (stock vat) equally divided over the first two ends of dyeing.
- Dye for 6 to 8 ends (45-60minutes) at constant dyeing temperature, carrying out regular checks on the condition of the bath with vat yellow paper and making additions of causticsoda and sodium hydrosulphite as required.
- Drain the dyebath completely and rinse with over-flowing cold water for 2 to 4 ends.
- Completely drain the last rinising bath and complete the oxidation with chemicals then soap at the boil.

### 9.2 Pre-pigmentation method

This method is valuable for obtaining improved penetration of heavy fabrics when it is not practicable to impregnate with pigmentdye on a padding mangle. Scour and bleach the fabric as required.

| | |
|---|---|
| End-1 | Fill the bath to about 70% of the final volume required. Add half the dye dispersed in water. Heat the bath to 80°C and run one end |
| End-2 | Add half the dye dispersed in water. Run at 80°C. |
| End-3 | Top up with cold water. Adjust the temperature to 60°C. Add two thirds of the caustic soda and two thirds of the sodium hydrosulphite. Run one end at 60°C |
| End-4 | Add the remaining caustic soda and sodium hydrosulphite. Run at 60°C |
| End-5 | Continue to dye at 60°C depending on depth of shade. |
| End-6 | |
| End-7 | Any salt additions, required for Method 2 dyes in deep shades should be added in the equal |
| End-8 | portions at the 8 beginning of ends 7 & 8. |
| End-9 | Rinse in overflowing cold water before oxidation |
| End-10 | with chemicals, followed by 'soaping'. |

9.3 Pad-Jig dyeing

This method is used to ensure optimum penetration of thick fabrics and reproducibility of shade between jig loads. The dry, uniformly absorbent fabric is padded in a dispersioncontaining:

Arlovat Dyes (Micro Disperse) X g/l
Calsolene Oil H-S 2.5 g/l

The fabric is squeezed uniformly in a mangle and then carefully batched. If the dye cannot be developed immediately, the batch must be covered with polythene sheeting and rotated slowly during storage.

Development is carried out over four ends in a liquor containing the appropriate quantity of reducing agents and required dyeingtemperature, together with addition of dye padding liquor 10-20 m.The addition of caustic soda, sodium hydrosulphite and padliquor are normally made in two portions at the beginning of thefirst two ends.

### 9.4 Pad-dry-jig development

The followingmodifications are made to the method described in section 9.2:

i) Add- An anti-migrant 5-20 g/l to the pigment pad-liquor to aid control of the migration of pigment dye during the drying stage. For this stage, use an efficient infra-red pre-drier to reduce the moisture content of the fabric to 25-30% before completing the drying on cylinders or in a hot air-drying chamber.

ii) It is not necessary to add dye pad-liquor to the jig.

## 10. THE DYEING OF COTTON KNITTED FABRICS

There are essentially two methods of exhaust dyeing currently in common use for dyeing cotton knitted fabrics.

### 10.1 Semi-pigmentationprocess(winch and over flow machines)

- Set the bath at 20°C with soft water containing:
  Calsolene Oil H-S 2ml/l
  Carboxy methyl cellulose 0.25-0.3 g/l
  and run the fabric for 10 minutes
- Add the required caustic soda previously diluted with soft water (and pre-diluted levelling agentif required for pale shades)
  Add the required weight of Micro Disperse dyes

previously dispersed in warm water and run the fabric for 10 minutes.

- Add the required amount of sodium hydrosulphite predissolved in a portion to the bath-over 10 minutes.
- After 10 minutes, raisethetemperature of the bath at a rateof 1 °C/min to 70°C
- Continue to dye at 70°C for 30-40 minutes
- Rinse with cold water and oxidize. Then soap.

Note : Arlovat Blue R, Arlovat Blue BC and Arlovat Blue RCL are dyed at 60 °C

### 10.2 Hot-pigmentation process (Jet machines)

- Set the bath at 40°C with soft water containing:

Calsolene Oil H-S 2ml/l

and run the fabric for 5 minutes

- Add the required caustic soda, previously diluted in soft water, together with pre-diluted levelling agent, if required.
- Add the required weight of Micro Disperse dyes previously dispersed in warm water and run the fabric for 10 minutes.
- Raise the temperature to 80-85°C and run the fabric for 15 minutes.
- Cool the bath to 70°C (60°C for bright blues) and add sodium hydrosulphite dissolved in a portion of the dyebath, over 10 minutes.
- Continue to dye for 30-40 minutes.
- Rinse with cold water and oxidise. Then Soap.

## 11. PAD-DRY-CHEMICAL PAD-STEAM PROCESS

### 11.1 General:

The pad-steam process for the dyeing of woven cellulosic piece goods using vat dyes is well established, and wildlypracticedthroughout the world. This process is outlined briefly here:
Pad-Dry-Chemical pad - Steam - Oxidise – Soap

### 11.2 Method:

Preparation of the pigment dispersion and padding carried out as describe in Sections 9.3 & 9.4. Cool the clothby airpassage or other means before chemical padding. Padcold in a liquor containing caustic soda and sodium hydrosulphite. Steam at 103°C-105°C in air free atmospherefor 30 seconds Rinse, oxidise, rinse, soap and rinse.Wet-on-wet pad-steam dyeing is also possible (For greaterdetails refer our shade card "Arlovat Micro Disperse forContinuous Dying")

## 12. Total Dyebath quantities including stock vat

### 12.1 Jig dyeing:

Total dyebath quantities, including stock vat:

| Shade on weight of dry fiber (Micro Disperse) | % | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 3 | | 5 | | 7 | | 10 | |
| Liquor-to-goods ratio | 3:1 | 5:1 | 3:1 | 5:1 | 3:1 | 5:1 | 3:1 | 5:1 | 3:1 | 5:1 |
| Caustic soda, 36 Be' (66 Tw) mil Method- 1 | 30 | 25 | 40 | 33 | 50 | 42 | 60 | 50 | 70 | 60 |
| Method- 2 | 20 | 15 | 26 | 22 | 38 | 32 | 48 | 40 | - | - |
| Sodium Hydrosulphite g/l | 12 | 10 | 18 | 15 | 25 | 20 | 30 | 25 | 35 | 30 |
| Common salt or Glauber's salt (calcined) g/l | 10 | 10 | 12 | 12 | 16 | 16 | 20 | 20 | - | - |

### 12.2 Yarn dyeing and Jet dyeing

The following concentrations of reducing agents arerecommended as a guide for dyeing at a liquor-to-goods ratio of10:1. Adjustments may need to be made locally to adapt toparticular conditions of liquor flow, aeration in addition tanks, andso on when working at short liquor ratios, the concentrations ofchemicals should be increased slightly, say by 10-15%. Similarly,lower concentrations may be used at longer liquor ratios.

Total dyebath quantities, including stock vat:

| Shade on weight of dry fiber (Micro Disperse) | % | | | | |
|---|---|---|---|---|---|
| | 1 | 3 | 5 | 7 | 10 |
| Caustic soda, 36 Be' (66 Tw) mil Method- 1 | 17 | 23 | 30 | 35 | 40 |
| Method- 2 | 10 | 14 | 17 | 20 | - |
| Sodium Hydrosulphite g/l | 4 | 5.5 | 7 | 9 | 12 |
| Common salt or Glauber's salt (calcined) g/l | 8 | 13 | 18 | 23 | - |

### 12.3 Winch dyeing

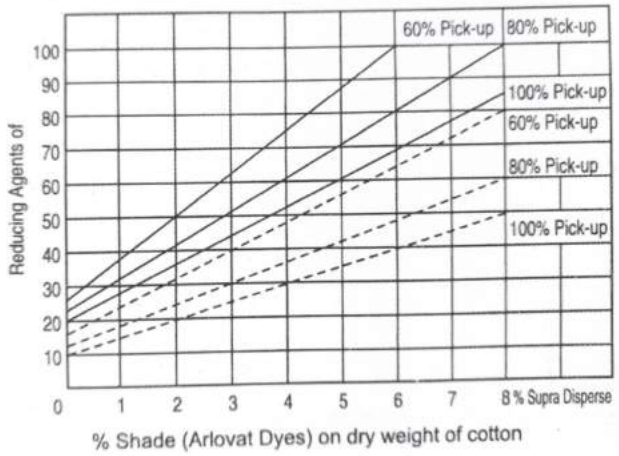
**Total dyebath quantities, including stock vat:**

| Shade on weight of dry fiber (Supra Disperse/Microperle) | % | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 3 | | 5 | | 7 | | 10 | |
| Liquor-to-goods ration | 20:1 | 30:1 | 20:1 | 30:1 | 20:1 | 30:1 | 20:1 | 30:1 | 20:1 | 30:1 |
| Caustic soda, 36 Be' (66 Tw) mil Method- 1 | 14 | 10 | 18 | 13 | 20 | 15 | 25 | 18 | - | 22 |
| Method- 2 | 7.5 | 6 | 10 | 7.5 | 13 | 10 | 16 | 13 | - | - |
| Sodium Hydrosulphite g/l | 6 | 6 | 8 | 7 | 9 | 8 | 10 | 9 | 12 | 10 |
| Common salt or Glauber's salt (calcined) g/l | 10 | 10 | 12 | 12 | 16 | 16 | 20 | 20 | - | - |

## 12.4 Pad-Steam dyeing

Pigment-pad-dry-chemical-pad-steam

Required quantities of reducing agents in the chemical pad liquor:




A ratio of caustic soda flake (100%) 0.6 part, to sodium hydrosulphite 1.0 partshoud be employed.

---- Sodium hydrosulphite (concentrated powder)

--- Caustic soda flake (100%)

## FASTNESS DATA

The figures for light fastness are for day light fastness. Ratings are expressed on a numerical scale of 1 to 8 as follows:

8. Maximum
7. Excellent
6. Very Good
5. Good
4. Fairly Good
3. Moderate
2. Poor
1. Very Poor

All other fastness properties are expressed on a numerical scale 1-5 as follows:

5. No change in shade
4. Slight change in shade
3. Moderate change in shade or dyeing weaker
2. Dry marked change in shade or dyeing much weaker
1. Greatly changed in shades or dyeing very much weaker

Staining:

5. No staining of adjacent white material
4. Slight staining of adjacent white material
3. Moderate staining of adjacent white material
2. Fairly heavy staining of adjacent white material
1. Heavy staining of adjacent white material

The tendencies of the colour change are indicated by the following marks:

R Redder

B Bluer

G Greener

Y Yellower

D Duller

S Change in shade and depth of shade

C Staining of adjacent white cotton material

Key to Abbreviations:

\+ Denotes increase in depth

\- Requires an addition of 15-20% sodium nitrite and phehanolamine calculated on the weight of sodium hydrosulphite.

The dyeings illustrated in this pattern card have been carried out on bleached cotton yarn at 1:20 material to liquor ratio. "Arlovat" is the registered trade mark of Arlex Group of Companies, Mumbai.

The information provided in this brochure and share card is given in good faith but without warranty (without guarantee)

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### Dyestuffs on Cotton Fabric

| 10 gpl | 40 gpl | | General Properties: Stock Vat Method | General Properties: Vatting Temperature |
|---|---|---|---|---|
|  |  | Yellow 5GN | II | 60°C |
|  |  | Yellow 4GL (C.I.VAT Yellow 33) | II | 50°C |
|  |  | Golden Yellow RK (C.I.VAT Orange 1) | I | 50°C |
|  |  | Yellow 3RT (C.I.VAT Orange 11) | II | 60°C |
|  |  | Orange RF (C.I.VAT Orange 5) | II | 70°C |
|  |  | Orange GR (C.I.VAT Orange 7) | III | 70°C |
|  |  | Gold Orange G (C.I.VAT Orange 9) | I | 60°C |
|  |  | Gold Orange 3G (C.I.VAT Orange 15) | I | 70°C |
|  |  | Pink R (C.I.VAT Red 1) | IV | 80°C |
|  |  | Red 3B (C.I.VAT Red 10) | II | 60°C |

| General Properties | | Fastness Properties | | | | |
|---|---|---|---|---|---|---|
| Colour of Reduced Vat | Dying Temperature | Light Fastness Day Light 1/1 | Washing Fastness SO4 S | Soda Boil S | Chlorine Bleaching S | Hydrogen Peroxide Bleaching S |
| Reddish Violet | 60°C | 4 | 4-5 | 4 | 4-5 | 4-5 |
| Red Violet | 50°C | 6 | 4-5 | 4 | 5 | 5 |
| Orange Brown | 30°C | 5-6 | 3-4 | 4-5 | 4*-5 | 5 |
| Orange Brown | 50°C | 6-7 | 4-5 | 4 | 4-5 | 5 |
| Yellow | 50°C | 4-5 | 4 | 3-4 | 4 | 4 |
| Red Brown | 60°C | 6-7 | 4-5 | 4-5 | 5 | 5 |
| Red Brown | 60°C | 4-5 | 4 | 4 | 5 | 5 |
| Orange Brown | 60°C | 5-6 | 3-4 | 4-5 | 4*-5 | 5 |
| Yellow | 50°C | 5 | 4-5 | 4-5 | 4 | 4-5 |
| Black Brown | 50°C | 6 | 4-5 | 4 | 4 | 5 |

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## MICRO DISPERSE
### Dyestuffs on Cotton Fabric

| 10 gpl | 40 gpl | | General Properties: Stock Vat Method | General Properties: Vatting Temperature |
|---|---|---|---|---|
|  |  | Red 6B (C.I.VAT Red 13) | II | 60°C |
|  |  | Bordeaux 2R (C.I.VAT Red 15) | III | 60°C |
|  |  | Violet 2R (C.I.VAT Violet 1) | II | 60°C |
|  |  | Vat Magenta (C.I.VAT Violet 3) | IV | 85-90°C |
|  |  | Violet XBN (C.I.VAT Violet 13) | II | 60°C |
|  |  | Blue RSN (C.I.VAT Blue 4) | III | 60°C |
|  |  | Blue BC (C.I.VAT Blue 6) | III | 60°C |
|  |  | Navy Blue RA (C.I.VAT Blue 18) | I | 60°C |
|  |  | Dark Blue BO (C.I.VAT Blue 20) | II | 60°C |
|  |  | Navy Blue VH (-) | I | 60°C |

| General Properties | | Fastness Properties | | | | |
|---|---|---|---|---|---|---|
| Colour of Reduced Vat | Dying Temperature | Light Fastness Day Light 1/1 | Washing Fastness SO4 S | Soda Boil S | Chlorine Bleaching S | Hydrogen Peroxide Bleaching S |
| Greenish Blue | 60°C | 6 | 4-5 | 4-5 | 4-5 | 5 |
| Brown | 60°C | 6 | 4-5 | 4 | 4-5 | 4-5 |
| Blue | 60°C | 6 | 4-5 | 4-5 | 4-5 | 5 |
| Yellow | 55°C | 5 | 4-5 | 4 | 4-5 | 4-5 |
| Bluish | 50°C | 6 | 4-5 | 4 | 4-5 | 5 |
| Blue | 60°C | 7 | 4-5 | 4R | 2G | 4-5 |
| Blue | 50°C | 7-8 | 4-5 | 3-4R | 3G | 4-5 |
| Green Blue | 60°C | 6-7 | 4-5 | 4 | 4 | 5 |
| Blue | 60°C | 7-8 | 4-5 | 3R | 4-5 | 4-5 |
| Violet | 60°C | 6 | 4-5 | 4 | 4 | 5 |

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### Dyestuffs on Cotton Fabric

| 10 gpl | 40 gpl | | General Properties | |
|---|---|---|---|---|
| | | | Stock Vat Method | Vatting Temperature |
|  |  | Navy Blue DS (-) | I | 65°C |
|  |  | Dark Blue DB (-) | I | 65°C |
|  |  | Blue RCL (-) | III | 60°C |
|  |  | Navy Blue G (C.I.VAT Blue 16) | I | 60°C |
|  |  | Green FFB (C.I.VAT Green 1) | II | 60°C |
|  |  | Olive Green B (C.I.VAT Green 3) | III | 60°C |
|  |  | Olive T (C.I.VAT Black 25) | II | 60°C |
|  |  | Olive R (C.I.VAT Black 27) | III | 60°C |
|  |  | Brown BR (C.I.VAT Brown 1) | I | 60°C |
|  |  | Brown R (C.I.VAT Brown 3) | I | 60°C |

| General Properties | | Fastness Properties | | | | |
|---|---|---|---|---|---|---|
| Colour of Reduced Vat | Dying Temperature | Light Fastness Day Light 1/1 | Washing Fastness SO4 S | Soda Boil S | Chlorine Bleaching S | Hydrogen Peroxide Bleaching S |
| Violet | 60°C | 6 | 4 | 3R | 4 | 4-5 |
| Bluish | 60°C | 6 | 4-5 | 4 | 4-5 | 4-5 |
| Blue | 60°C | 6 | 4-5 | 3-4 | 3-4 | 4-5 |
| Bluish | 60°C | 6-7 | 4-5 | 4 | 4 | 4-5 |
| Blue | 60°C | 6-7 | 4-5 | 4 | 4-5 | 4-5 |
| Blue Black | 60°C | 8 | 4-5 | 4 | 4-5 | 4-5 |
| Grey | 60°C | 7-8 | 4-5 | 4-5 | 4-5 | 4-5 |
| Dull Redish Brown | 60°C | 7 | 4-5 | 4-5 | 4-5 | 4-5 |
| Yellow Brown | 50°C | 7-8 | 5 | 4-5 | 4-5 | 4-5 |
| Orange Brown | 50°C | 7 | 5 | 4-5 | 4-5 | 4-5 |

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### Dyestuffs on Cotton Fabric

| 10 gpl | 40 gpl | | General Properties | |
|---|---|---|---|---|
| | | | Stock Vat Method | Vatting Temperature |
|  |  | Brown RRD (C.I.VAT Brown 5) | IV | 85°C |
|  |  | Khakhi 2G (C.I.VAT Green 8) | II | 60°C |
|  |  | Grey 3B (C.I.VAT Black 16) | II | 60°C |
|  |  | Grey 4607 (-) | I | 65°C |
|  |  | Black BB (C.I.VAT Green 9) | II | 60°C |
|  |  | Black AHT (-) | I | 60°C |
|  |  | Black 4589 (-) | I | 65°C |
|  |  | Black DB (-) | I | 60°C |
|  |  | Black R (-) | I | 60°C |

| General Properties | | Fastness Properties | | | | |
|---|---|---|---|---|---|---|
| Colour of Reduced Vat | Dying Temperature | Light Fastness Day Light 1/1 | Washing Fastness SO4 5 | Soda Boil 5 | Chlorine Bleaching 5 | Hydrogen Peroxide Bleaching 5 |
| Reddish Yellow | 80-90°C | 7 | 5 | 4-5 | 4-5 | 4-5 |
| Dull Yellow Brown | 50°C | 5-6 | 4-5 | 3-4 | 4 | 4 |
| Violet | 60°C | 6-7 | 4R | 4R | 3R | 4R |
| Reddish Violet | 60°C | 6 | 4-5 | 4 | 4-5 | 4-5 |
| Dull Blue | 60°C | 7 | 4-5 | 4-5 | 4-5 | 4-5 |
| Reddish Violet | 60°C | 5-6 | 3-4 | 3R | 4-5 | 4-5 |
| Violet | 60°C | 7 | 4-5 | 4 | 4-5 | 4-5 |
| Reddish Violet | 60°C | 5-6 | 3-4 | 3R | 4-5 | 4-5 |
| Violet | 60°C | 6 | 4-5 | 4 | 4-5 | 5 |


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# ARLOVAT

## MICRO DISPERSE PASTE

ARL

www.arlex.in

| ARL | PRODUCT | L | W | CL |
|---|---|---|---|---|
|  | ARLOVAT YELLOW GCN PASTE<br>4% 8% | 4-5 | 5 | 5 |
|  | ARLOVAT GOLDEN YELLOW GOK PASTE<br>4% 8% | 5-6 | 4 | 5 |
|  | ARLOVAT ORANGE RF PASTE<br>4% 8% | 5 | 4 | 4-5 |
|  | ARLOVAT SCARLET MGCN PASTE<br>4% 8% | 5-6 | 4-5 | 4-5 |
|  | ARLOVAT PINK R PASTE<br>4% 8% | 6 | 4-5 | 5 |
|  | ARLOVAT PINK R3B PASTE<br>4% 8% | 5-6 | 4-5 | 5 |
|  | ARLOVAT RED VIOLET RRN PASTE<br>4% 8% | 6 | 4-5 | 5 |
|  | ARLOVAT VIOLET 2R PASTE<br>4% 8% | 6-7 | 5 | 5 |

| ARL | PRODUCT | L | W | CL |
|---|---|---|---|---|
|  | ARLOVAT BLUE 4B PASTE<br>4% 8% | 5 | 5 | 3-4 |
|  | ARLOVAT INDIGO 4G PASTE<br>4% 8% | 4 | 3-4 | 3-4 |
|  | ARLOVAT GREEN FFB PASTE<br>4% 8% | 7 | 5 | 5 |
|  | ARLOVAT GREEN FFB PASTE (N)<br>4% 8% | 7 | 7 | 5 |
|  | ARLOVAT GREEN 2G PASTE<br>4% 8% | 5 | 4 | 4-5 |
|  | ARLOVAT OLIVE GREEN B PASTE<br>4% 8% | 7-8 | 4-5 | 5 |
|  | ARLOVAT KHAKHI 2G PASTE<br>4% 8% | 5 | 4 | 4-5 |
|  | ARLOVAT BROWN RRD PASTE<br>4% 8% | 7 | 4-5 | 5 |

MICRO DISPERSE PASTE **ARLOVAT**

| | PRODUCT | L | W | CL |
|---|---|---|---|---|
|  | ARLOVAT GREY 3B PASTE<br>4% 8% | 6-7 | 5 | 5 |
|  | ARLOVAT BLACK BG PASTE<br>4% 8% | 6-7 | 5 | 5 |
|  | ARLOVAT BLACK BB PASTE<br>4% 8% | 6-7 | 5 | 5 |
| CAMOUFLAGE  | | | | |
|  | ARLOVAT OLIVE GREEN B PASTE<br>4% 8% | 6 | 4-5 | 5 |
|  | ARLOVAT OLIVE GREEN B PASTE (N)<br>4% 8% | 6 | 4-5 | 5 |
|  | ARLOVAT BROWN RRD PASTE<br>4% 8% | 7 | 4-5 | 5 |
|  | ARLOVAT BLACK BB PASTE<br>4% 8% | 6-7 | 5 | 5 |

## ARLOVAT (MD) PASTE IN TEXTILE PRINTING

This Pattern Card illustrates range of Vat Dyestuff Indigoid & Anthraquinonoid Vats in Micro dispersed (MD) paste form suitable for textile printing on cellulosic fabric like cotton, Rayon viscose staple, cuprammonium Rayon etc. & also discharge print on dischargeable dyed cellulosic fabrics.

The particle of dyestuff in this range have been brought down to extremely small size & they have been transformed into a fine dispersion with the help of most modern technique giving considerable stability and uniformity to the paste and facilities easy fixation of dyestuffs even under varying condition of steaming.
Arlovat (MD) Vat Paste have excellent brightness, dispersion and all fastness properties and cover complete range of colors from Yellow to Black.

### 1. PREPARATION OF STOCK PASTE:

| | |
|---|---|
| 150 Gms | Rangolite C Powder |
| 120 Gms | Potassium Carbonate |
| 50 Gms | Glycerin |
| 680 Gms | Thickener |
| 1000 Gms | |

For Black BG Paste Extra addition of Potassium carbonate (5%) & Rangolite C (5%) is recommended.

### 2. THICKENER:

Indalca AGBV 3% or UBV (3%) British Gum (3%) and maize starch (6%) are cooked together till transparent mass is obtained and cooled to room temperature. Adjust the viscosity as per requirement.

### 3. PREPARATION OF PRINTING PASTE (5% SHADE)

| | |
|---|---|
| 50 Gms. | Arlovat (MD) Paste |
| 50 Gms. | Water |
| 900 Gms. | Stock Paste |
| 1000 Gms | |

Fixation of color is improved if printing paste are kept overnight before us.

## 4. STRAINING:

Printing paste prepared above is filtered through a fine cloth before printing in order to remove hard particles from the Paste.

## 5. DRYING AND STEAMING:

Printed cloth should be dried well at 50° - 55° C. Steaming is carried out continuously in a Rapid ager for 10-12 mins or in Star ager (20-25 min) with moist steam at 101° C - 103° C (under pressure) and in absence of air.

## 6. OXIDATION:

The steamed fabric is oxidized to convert Leuco compound formed during steaming into insoluble VAT color which is fixed on the fabric.

The Steamed fabric is oxidized by treating in a bath containing

2-3 gm/lit Sodium perborate OR
2-3 gm/lit Hydrogen peroxide with
0.5-1 CC/lit Glacial Acetic Acid at 40° - 45° C
temp for 5-10 min. to keep the steamed before chemical oxidation

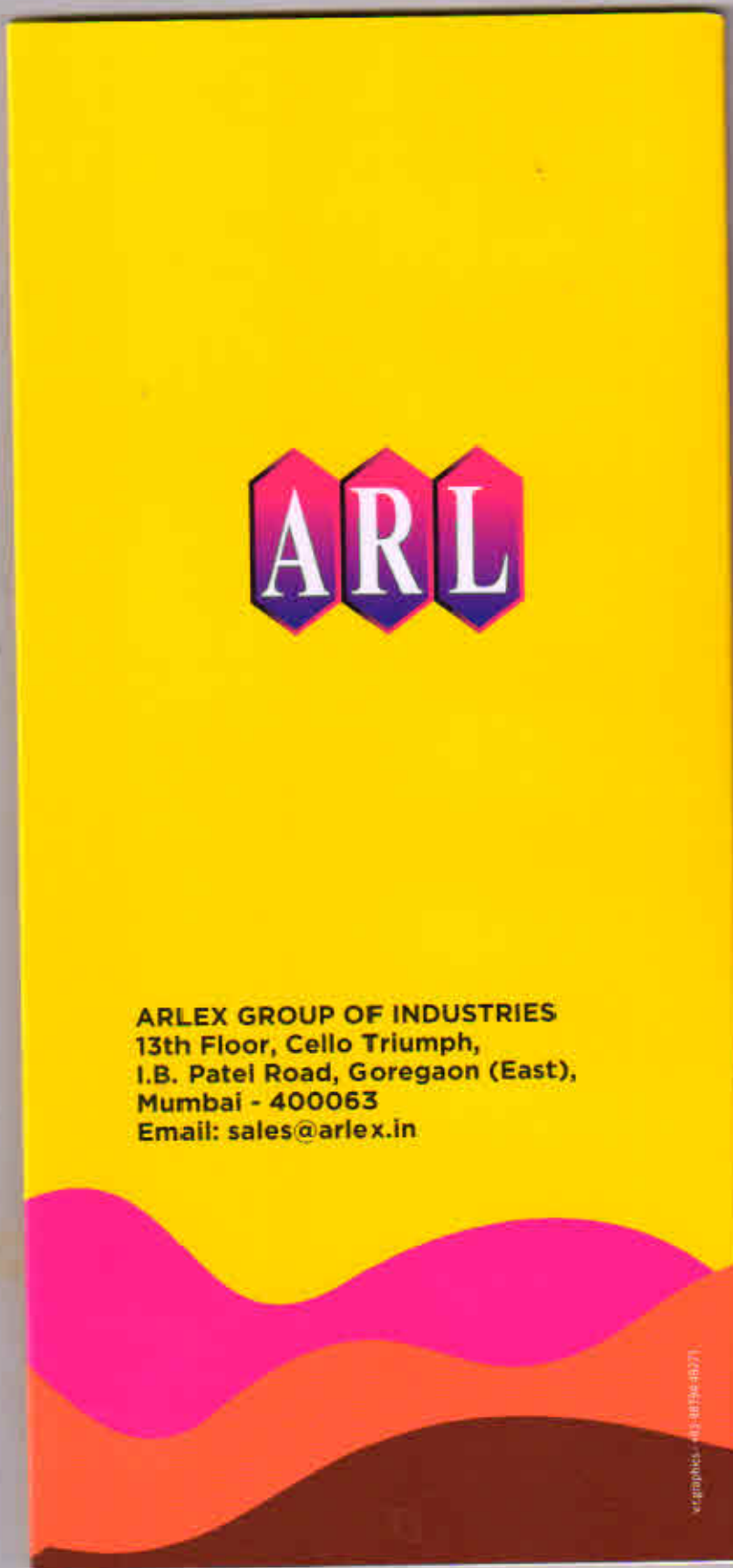
## 7. SOAPING:

After Oxidation fabrics are rinsed well and soaped at boil with 3 gm/lit. Soap & 2 gm/lit. Soda Ash. For viscous fabric soaping is carried out at 80°C. Wash & dry for getting brilliant & excellent shades of Arlovat Micro Dispersed Paste.

## 8. IMPORTANT POINTS (TO BE FOLLOWED)

Following points of useful information are given in connection of Vat Paste.

i) For best results scouring and bleaching of fabrics is important.
ii) Straining of printing paste is necessary to avoid the damage of screen of prints.
iii) For better results printing paste should be kept over night.
iv) Larger quantity of Rangolite C & Potassium carbonate may be needed for discharge printing.
v) Use antraquinone for color discharge which are difficult to discharge.
vi) Printed cloth should be dried at 50° - 60° C. otherwise Rangolite C will be decomposed & shade will become lighter.
vii) Dried Printing cloth should not be kept for larger time in open air.
viii) Steaming is very important for this process so temperature & pressure must be maintained properly.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