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TEXTILE PRINTING & DYEING WITH PROCION DYES

The information contained in this leaflet is given in good faith. This information is accurate to the best of our knowledge and represents the most up to date information available to us. Products should be handled and used in accordance with the advice given.

IN ALL CASES PRELIMINARY TRIALS SHOULD BE CARRIED OUT ON EACH FABRIC AND UNDER THE CUSTOMERS CONDITIONS OF PROCESSING TO ENSURE THE RESULTS MEET THE SPECIFICATION DESIRED FOR THE END USE.

TEXTILE PRINTING & DYEING WITH PROCION DYES

The use of Procion dyestuffs represents a relatively simple method of producing bright shades possessing excellent washing and light fastness properties on all major cellulosic and related fibres, e.g. Cotton, Linen and Viscose, both by dyeing and printing application techniques.

Due to the simple application methods, Procion dyes are eminently suitable for use in school, occupational therapy and household crafts, whilst giving serviceable and brightly coloured fabrics or designs.

Physical form of Procion dyestuffs: POWDER

STORAGE STABILITY: It is possible to keep the dye powders almost indefinitely if stored in closed containers and in a cool atmosphere. However, under adverse conditions, the Procion MX type dyes may lose some of their reactivity giving rise to prints or dyeings with reduced washing fastness.

COMPATABILITY: The Procion MX dyes may be used together in any proportion for printing and dyeing as may the Procion H/P dyes. The use of Procion MX dyes in admixture with Procion H/P dyes is not recommended.

In general, the use of Procion MX brand is considered the most practical for the processes in mind, but for the

Production of certain shades it may be necessary to use the Procion H/P brand dyestuffs.

GENERAL INSTRUCTIONS FOR PRINTING AND DYEING

PREPARATION OF THE FIBRE PRIOR TO DYEING OR PRINTING

All textiles whether in yard or piece form should be scoured before colouring to remove any finishes or dirt that may be present, and to ensure that the textile is neutral in reaction. Fibres that contain permanent finishes that are not removed by the following treatment are unsuitable for either dyeing or printing;

Work the fibre in a solution containing 1-2 parts METAPEX 26 per 100 parts Water for 30 minutes at 70-80°C.

Rinse thoroughly in warm and then cold water. If the goods are to be dyed then it is necessary to dry them after scouring. If to be printed, then it is necessary to carefully iron them flat and remove creases.

TEXTILE PRINTING BY SCREEN OR BLOCK

The general printing recipe is as follows and is suitable for cotton (the best colours value is obtained on mercerised cotton) and viscose:-

PARTS BY WEIGHT

10	UREA dissolved in to
46.5 – 42.5	WATER and heated to 70°C (it is important that this temperature is not exceeded)
1 – 5	PROCION DYESTUFF when dissolved the coloured solution is added slowly and carefully stirred into
40	MANUTEX F 5% thickening.
1	RESIST SALT L LIQUID (MATEXIL PAL LIQUID) is added.
	When the paste is cool and just before using to print, stir in
1.5	SODIUM BICARBONATE. (This amount should be accurately weighed out and must Not be exceeded).

100 Parts in Total

MANUTEX F 5% thickening is made up as follows:-

5 parts MANUTEX F is sprinkled into 95 parts WATER and stirred for 5-10 minutes.

PROCION MX DYE PRINT PASTES Should be freshly prepared each day. Only sufficient for immediate use should be prepared at any one time.

PROCION H/P DYE PRINT PASTES can be stored for up to 4 weeks if desired, if kept in airtight containers in a cool atmosphere.

The textile fabric is printed with the Procion print paste and then dried to remove excess moisture from the printed area. After drying, the dye requires to be fixed. The method of fixation will depend on the equipment available and which type of Procion dye has been used.

METHODS OF FIXATION

Suitable for either Procion MX or H/P dyes.

- (1) **STEAMING** for 5-10 minutes in the type of vessel normally found in art schools. The steaming conditions are not critical.
- (2) **BAKING** for 5-10 minutes using an ordinary domestic electric oven fitted with temperature control. Temperature setting at 140°C.

THE FOLLOWING SUITABLE FOR PROCION MX DYES ONLY

- (3) **IRONING** for 5 minutes at 140°C with a household hand iron, preferably of the thermostatically controlled type with steam facilities.
- (4) **AIR HANGING** After printing, the fabric is allowed to dry by hanging in a warm humid atmosphere for 24-48 hours. Superior results can be obtained using this method if the 1.5 parts SODIUM BICARBONATE is replaced with a mixture of 1 part SODIUM BICARBONATE + 0.5 parts SODIUM CARBONATE (SODA ASH) in the print paste preparation stage.
- (5) **AIR HANGING (Alternative method)** In this method of fixation of the Procion dyes, the fabric is first treated by padding with SODIUM CARBONATE solution. This may be carried out by soaking the scoured material for 30 seconds in a cold solution containing 2 parts per hundred SODIUM CARBONATE (SODA ASH) in water, then squeezing the fabric before drying and ironing. The Procion print paste is then applied and the fabric allowed to dry by hanging in a warm humid atmosphere for 24-48 hours.

After the fixation stage the fabric must be rinsed thoroughly for 5 minutes preferably in open width in running water until all the loose colour is removed.

Finally, the fabric must be boiled for 5 minutes in a solution containing 1-2 parts METAPEX 26 per 1000 parts water and then rinsed in cold water and dried. In the event of the rinsing water of the METAPEX 26 solution becoming highly coloured, it should be discarded and replaced with a fresh bath. This final treatment ensures the removal of any unfixed or unreacted dyestuff necessary to give the high level of wash resistance associated with Procion prints in use.

The Procion dyes in water solution are quite suitable for colouring designs on paper.

HAND PAINTING OF FABRICS

The fabric should be scoured prior to use as previously described, followed by drying and then ironed flat. The printing paste formulation given for printing should be suitable for hand painting except for one very important adjustment; i.e. The MANUTEX F 5% thickening should be reduced from 40 parts to only 20 parts. When the painting is complete, the design may be fixed using any of the five methods already described and suggested.

The final soaping off and rinsing is carried out as suggested under textile printing.

TEXTILE DYEING

Excellent results can be obtained on small quantities of pre-scoured yarn or fabric by using small dyeing vessels made of glass, enamelled iron, stainless steel or plastic such as polythene. Stainless steel is the most suitable as it is easy to clean and is resistant to chemicals. Polythene vessels cannot, of course, be heated by direct heat.

Dyeing is normally carried out using a liquor to goods ration of 30 to 1, i.e. 0.5 Kilos of fabric in 15 Litres of Water. The goods should be kept below the surface of the water at all times during the dyeing operation and worked with a rod of glass or wood with rounded ends to prevent damage to the fibre. Working the fibre in this manner will ensure level results.

PREPARATION OF THE DYESTUFF SOLUTION

Dry dyestuff powder should never be added directly to a dye bath, it should always be dissolved initially in a separate vessel as follows;

Weigh out the required quantity of dyestuff into a small vessel and stir into a smooth paste with cold water.

Then add sufficient warm water until a clearer solution is obtained.

Solutions prepared from PROCION MX dyes should never be warmed above 50°C to assist dissolving.

DYEING RECIPE

THE WEIGHT OF THE DRY MATERIAL MUST BE KNOWN PRIOR TO DYEING.

PROCION MX DYES

- (1) Add the dye solution to the total volume of water calculated on the dry weight of the goods using a 30:1 liquor to goods ration, at 20°C.
- (2) Enter the scoured goods and dye in 10-15 minute periods. (adding SALT + SODA gradually)
- (3) Add between 5-30% COMMON SALT (Calculated on dry weight of material) to the dye bath in gradual quantities over 15 minute periods.
- (4) Add 4% SODIUM CARBONATE (SODA ASH) or 10% Washing Soda Crystals (Calculated on dry weight of material) to the dye bath in gradual quantities over 15 minute periods.
- (5) Turn the material well for 1 hour.

PROCION H/P DYES

- (1) Add the dye solution to the required volume of water heated to 40°C (Warm)
- (2) Enter the scoured goods and dye for 10-15 minutes.
- (3) Add 10-30% of COMMON SALT in gradual quantities over 15 minute periods.
- (4) Add 8% SODIUM CARBONATE (SODA ASH) or 20% Washing Soda Crystals in gradual quantities over 15 minute periods.
- (5) Raise the temperature of the solution to 80°C and continue to dye at this temperature for 1 hour.

Finally, for both MX and H/P dyeings, rinse well in cold or warm water until it becomes reasonably clear and then treat in a solution containing 1.5 gms per litre METAPEX 26 in water at 80-95°C for 15 minutes to remove any residue or unreacted dyestuff, followed by a thorough rinse in water and drying.