**DATACOLOR MATCH TEXTILES CALIBRATION DYESET**

**PREPARATION GUIDELINES.**

**INTRODUCTION**

The database is the most important factor in obtaining good results from your match prediction system.

The following are general recommendations for setting up an initial database. A good database will guarantee good results from your system and the whole process should be one of considered decisions and checking.

**SUBSTRATE**

The substrate chosen should be typical of the qualities/fibres used in the dyehouse and have no dyeing problems or unusual properties.

A substantial quantity (10 to 25 kilos) should be prepared in bulk and reserved exclusively for database work. After the initial samples have been made prepared then the remainder of the unused fibre should be stored in clean dark conditions for future use. As you currently only use one type of acrylic then this fibre should be used.

**DYEING**

Initially choose a limited range of dyes when preparing a new database, avoid the temptation of preparing data for all dyes. This will avoid wasting time and effort if any mistakes are made in the sample preparation or the concentration ranges used. After the successful completion of the initial tests the samples for the remaining dyes can be prepared. For a new database choose a small range of the most commonly used dyes that includes your standard trichromat, e.g. a yellow, red & blue that are compatible with each other and build up on tone. The range should also include at least a navy and a black.

**Choosing the dyeing process**

Choose one process for this dyeset that is typical of those used in the lab, taking into consideration lab to bulk repeatability. The process should be dyed at a liquor ratio of 100 to 1.

**Choosing the Concentrations**

The range of concentrations chosen for a particular dyestuff must cover the range of depths commonly used, so the software can calculate the behaviour of the dye over the full concentration range you would use. From the lowest depth that corresponds to the smallest level of the dye you would use to the largest that should be darker than the fullest level. The depth should increase progressively avoiding any large jumps from one level to the next. When deciding the concentration range you also need consider the effect of depth on levelness, as this can often be an issue at low concentrations. The following is a typical range for a dyestuff which is normally dyed up to a concentration of 3%, 0.05% o.w.f., 0.1%, 0.25%, 0.5%, 1.0%, 2.0%, 3.0% and 4.0%. For a navy or black that is only used for dark shades the range could be 1.0% o.w.f., 1.5%, 2.0%, 3.0%, 4.0% and 6.0%.

These examples are only a guide; the actual levels should be determined to suit individual dyestuffs. The software can use a range of one to sixteen levels for each dye, however we recommend to initially use six to nine levels.

It is also necessary to prepare a "blank dyeing" for the computer. A blank dyeing is a piece of the material, fabric, yarn or fibre that has been used to dye the calibration

samples and has been exposed to a complete dyeing process without any dye. The blank dyeing should include the same auxiliaries, dye cycle, and finish process if used. Any colour change that results from the process can then be accounted for when the blank dyeing is entered into the database.

Accuracy and cleanliness are the keys to dyeing a successful database. Any errors introduced at this stage will have a negative affect on the results obtained in match prediction.

* Auxiliary samples should be freshly sourced from the supplier.
* Use the same water source as used for bulk dyeings.
* Check all glassware and pots for cleanliness.
* Use the dispenser to dispense all dyes and chemicals. If it’s not possible to use the dispenser for all products then use approved volumetric techniques, volumetric flasks and pipettes.
* Control the dyeing process specifically temperature, time, liquor ratio and chemical additions.
* Check that the correct liquor ratio/ pick up is used for the substrate.
* Wash off / finish as in bulk.
* All other conditions should reflect those used in bulk.

Visually examine each dyeing checking that it is consistent with its declared concentration. Check that it is uncontaminated, level and in good physical condition.

**Continuous dyeing**

The general principals outlined above are valid for continuous dyeing however the concentrations are in g/l. The pick up should be controlled and consistent for all the database dyeings.

**Known mixtures**

In order to check the accuracy of a match prediction system a series of known mixtures are should be prepared. These dyeings should consist of different proportions of dyes at different depths, for example

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | MIX 1 | MIX 2 | MIX 3 | MIX 4 | MIX 5 |
| YELLOW | 0.1 | 0.5 | 1.5 | 0.1 | 1.5 |
| RED | 0.5 | 1.5 | 0.1 | 0.1 | 1.5 |
| BLUE | 1.5 | 0.1 | 0.5 | 0.1 | 1.5 |

At least two of the mixtures should be repeated to check the repeatability of the lab processes.