



Part D

Helpful Hints

- 1. Do s and Do nots**
- 2. Frequently Asked Questions**
- 3. Suggestions for Eco-Friendly Processing**
- 4. Some Non Eco-Friendly Chemicals and Potential Substitutes**

1. Do s and Do not s

Do . . .

- ☺ Procure dyestuffs, pigments and textile auxiliaries from reputable manufacturers only. A list of reputable dye manufacturers is available from the Ecological Toxicological Association of Dyestuffs (ETAD), Basel, Switzerland.
- ☺ Insist on the supplier providing the materials safety data sheet (MSDS) for the dyes and textile auxiliaries procured. Study of these safety sheets will reveal whether the materials procured are free from banned amines and prohibited heavy metals and chemicals.
- ☺ Use only the latest shade cards of reputable manufacturers - most will have already withdrawn harmful dyes and have provided alternatives wherever possible.
- ☺ Use the safe alternatives of the problematic dyes. In some cases where exact matching is not possible, it is recommended to use the nearest possible shade with a safe dyestuff only, and discontinue the problematic shade.
- ☺ Make a list of all dyes and chemicals currently used along with their C.I. number and check it with the available banned list. Prepare a new list of safe dyes along with C.I. number.
- ☺ If possible, use reactive dyes for cellulose fibres. They are not based on the banned amine (some reactive dyes, which are based on banned amines, are now not commercially manufactured).
- ☺ Send the sample to a reputed laboratory for testing to ensure the safety of dyes or chemicals in case of doubt.
- ☺ Use only certified and safe accessories.
- ☺ As a precautionary measure, avoid metal contamination in the feed water during the use of hydrogen peroxide bleaching, otherwise problems of pinhole formation may be observed.

Do not . . .

- ☹ Do not procure loose dyes and chemicals, as these are very easily contaminated. Chemicals and dyestuffs should be purchased in sealed packages only.
- ☹ Do not perform chlorine bleaching.
- ☹ Do not use the kerosene-based thickener in pigment printing. If its use is unavoidable, use only odourless kerosene.
- ☹ Do not top (over dye) unless it is absolutely necessary, in which case use only safe dyes.

2. Frequently Asked Questions

1. What is an eco-label? Is it applicable to textiles?

An eco-label is used to guarantee the consumer an ,eco-friendly, product and to distinguish the product from competitors in a positive ,greener, way. The importance of eco-labels to trade varies between product groups and countries. Eco-labels for textiles are widely recognised and they are relatively important. This is illustrated by the fact that there are many eco-labels in this field.

2. Who grants it?

Certifying institutions, a number of which are listed in Appendix 3 labels.

3. What are the benefits of eco-label?

- Commercial benefits: for example entry / improve the export market.
- Social benefits: e.g. reduce environmental pollution.
- Sense of security in providing a high quality product.
- Maintaining the lead over others in the highly competitive buyers global market.
- Enhancement of image of the company.
- Improvement of skill, confidence and motivation of employees.
- Scope for further Improvement in a continuous manner.

4. Is an eco-label for an article or for the fabric?

An eco-label be granted to yarns, fabrics and garment as well as to decoration materials (e.g. curtains, carpets).

5. What type of chemicals need to be phased out?

- Formaldehyde based products;
- Pesticides (for natural fibers);
- Pentachlorophenol (PCP, used in sizes);
- Heavy metals (Arsenic, Lead, Cadmium, Mercury, Cobalt, Copper, Zinc and Chromium);
- Azoic dyes that could release any of the 20 listed prohibited amines through cleavage;
- Halogenated carriers in polyester dyeing;
- Chlorine bleaching;
- Kerosene based thickeners (partially or totally);
- Surfactants based on phenols (e.g. alkylated phenols ethoxylates ,APOE., Nonyl phenol ethoxylate ,NPO,).

6. Do we have to change the dyes used?

Yes, if they are azoic and release any of the 20 banned amines through cleavage. Also, if their contents of free heavy metals are high.

7. Do we have to change the processing sequence?

The process sequence can be modified to phase out harmful chemicals as well as to upgrade the product quality.

8. Which sizing agents are harmful and need to be avoided?

Those containing PCP as a preservative.

9. Which preparation chemicals are harmful and needs to be avoided?

- Chlorine based bleaching agents
- Phenol based surfactants (can be checked through safety data sheet).

10. Can it be done without management commitment?

Management commitment is a must.

11. Who are involved in Eco-labelling?

The top management, the managers of purchasing, production and quality control as well as processing people.

12. How long is the eco-label certificate valid for?

One year.

13. Does it need to be renewed?

It needs to be renewed annually.

14. What is the renewal process?

A renewal application needs to be submitted before the expiry period for continuing the authorisation without any break. The renewal form seeks information about any changes proposed in the production line. Fresh representative samples need to be sent along with the renewal application. Renewal becomes simple, if there are no changes in the production line.

15. From where should we get an application form?

The certifying institution.

16. Are there any special precaution necessary in completing the application form?

- The article to be certified should be clearly defined.
- List of dyestuffs and chemicals should be of the safe category.
- Attached lists must have the same serial number as that in the application form.
- Material safety data sheets should be attached to the application form.
- In case of using dyes and or pigment without material safety data sheets, representative dyed and or printed samples (in strips form and of the darkest shades) should be enclosed for analysis.
- Declaration of conformity should be signed and attached to the application form.

17. Is it a difficult job or manageable?

It is a manageable job particularly if all documents are kept in one place.

18. What is a material safety data sheet?

Material safety data sheets for dyes indicate their CI Number, absence of banned amines and limiting values of heavy metals, whereas material safety data sheets for various textiles auxiliaries ascertain their human ecological suitability. Examples of safety data sheets are shown in Appendix 4.

A material safety data sheet includes the following information: the name of the product, CI Number of dye or pigment, hazardous identification, first aid measures, fire fighting measures, handling and storing, personal protection, physical and chemical properties, toxicological information, ecological information, and disposal information.

19. Who will supply the material safety data sheet?

The supplier of chemicals, dyes and auxiliaries.

20. Is it possible to carry out complete testing job by in-house laboratory?

No.

21. If not, what parameters can be tested by in-house laboratory and who can test the remaining parameters?

- In house testing parameters: pH and fastness properties.
- Formaldehyde and heavy metals at NRC laboratory, or Textiles Consolidation Fund, Alexandria.
- Pesticides (PCP), and banned azoic dyestuffs at any of the certifying institutes.

3. Suggestions for Eco-friendly Processing

- Replace conventional sizing agents such as starch with water soluble sizing agents such as modified starches and polyvinyl alcohol and CMG.
- Bleach with hydrogen peroxide using organic stabilisers.
- Fully or partly substitute kerosene with aqueous polymeric thickeners wherever possible.
- Avoid stannous chloride and zinc sulfoxylate formaldehyde during discharge printing.
- Water/fire proofing agents should not contain phosphorous compounds, fluoro compounds or heavy metal catalysts.
- Use permanent adhesive on tables and screen-printing (or Rotary) in place of conventional gumming wherever possible.
- Use single class dyestuffs (eg. indigosol and pigment), for dyeing blended variety in pale shades instead of two stage dyeing (e.g. polyester with disperse dye & cellulose with vat, reactive etc.).
- Follow a single stage preparatory process (i.e. one step desizing, scouring and bleaching) especially for cellulose/polyester blends.
- Dyeing-cum-sizing of warp yarns for denims.
- Use the padding method of dyeing instead of exhaust dyeing wherever possible.
- Use the dry heat fixation technique for the development of rapidogen prints instead of the conventional acid steaming method.
- Avoid the use of stain removers/scouring assistants which contain chlorinated hydrocarbon solvent emulsions.
- Avoid the use of copper/zinc salts in the after treatment of direct/reactive dyed goods.
- Use neutral reactive dyes in combination with disperse dyes to avoid two stage dyeing process in polyester/cotton blends.
- Use sulphuric acid or formic acid in place of acetic acid for achieving an acidic pH.
- Use dyes in the paste or liquid form - this is less harmful to factory workers.
- Wherever possible, use biodegradable dyes, chemicals, detergents and auxiliaries.
- Avoid the use of chromium salts for oxidation during dyeing with Vat and Sulphur dyes.
- Use a sugar based reducing agent during sulphur dyeing.

4. Some Non Eco-Friendly Chemicals and Potential Substitutes

Non Eco-friendly Chemical	Use	Alternative Chemicals
<ul style="list-style-type: none"> ■ Pentachlorophenol ■ Formaldehyde 	Size preservatives	Sodium silicofluoride
Nonyl phenyl ethylene oxide adducts (APEO)	Detergent, emulsifier	Fatty alcohol ethylene oxide adduct
Silicones and amino silicones and APEO emulsifier	Softening, water- repelling	Anionic/cationic/non-ionic softeners wax emulsion
<ul style="list-style-type: none"> ■ Bleaching powder ■ Sodium hypochlorite 	Cotton bleaching	Hydrogen peroxide
<ul style="list-style-type: none"> ■ Sodium silicate ■ Phosphorous based compound 	Hydrogen peroxide stabilisers	Nitrogenous stabilisers
<ul style="list-style-type: none"> ■ Dichlorobenzene ■ Trichlorobenzene 	Carriers in polyester dyeing	Butyl benzoate Benzoic acid
Kerosene (as emulsion thickener)	Pigment printing	Water-based thickeners
Formaldehyde	<ul style="list-style-type: none"> ■ Crease resisting of cotton and its blends 	Polycarboxylic acid non-formaldehyde cross-linking agent
	<ul style="list-style-type: none"> ■ Dye fixing for direct and reactive dyeing 	Non-formaldehyde based products
	<ul style="list-style-type: none"> ■ Dispersing agent for disperse dyeing and vat dyeing 	--
	<ul style="list-style-type: none"> ■ Reactive softener (Methylol stearamide type) 	--
Sodium dichromate	Vat dyeing	Hydrogen peroxide