



Testing for Colourfastness

Introduction

When a museum textile is washed (or wet-cleaned), the approach taken differs considerably from how the artifact may have been washed historically. Washing is an irreversible treatment and may cause irreparable damage to a textile. A colourfastness (or washfastness) test must always be performed on a textile artifact before a wet-cleaning treatment is considered. Such a test will determine the reaction of the dyes within the textile to contact with water and detergent. This test, however, is not foolproof. The result is just one of many factors to take into account when considering whether or not an artifact can be wet-cleaned.

Historic textiles in the following categories should never be washed and, therefore, not tested for colourfastness:

- very fragile artifacts
- artifacts made of any materials that are vulnerable to water (e.g. artifacts made of wool or of early man-made fabrics)
- artifacts that have never been washed
- textiles with surface finishes (e.g. chintz)
- quilts with stuffing; multi-fabric quilts
- composite artifacts (e.g. an artifact composed of textile, leather, and metal combined)
- knits
- bias-cut garments
- artifacts with trims, beads, or sequins
- artifacts having historically significant soils that should be retained
- textiles in which colours have already bled
- costumes with attached linings

If the artifact does not fall into any of these categories, but some doubt remains about the safety of wet-cleaning (especially if the artifact is valuable or of historical importance), seek advice from a professional textile conservator or the Canadian Conservation Institute.

Backing, repair fabrics, and threads to be used in the conservation treatment or mounting of the artifact must also be tested for colourfastness. In addition, backing and repair fabrics must be washed before use (see CCI Notes 13/10 *Stitches Used in Textile Conservation* for washing instructions).

Materials

- purified water (distilled or deionized)
- a neutral pH detergent (see CCI Notes 13/9 *Anionic Detergent*)
- two eyedroppers with bottles
- small squares of acid-free chromatography or blotting paper, or prewashed white 100% cotton fabric
- squares of Mylar or clean polyethylene sheeting (these squares must be larger than the paper or fabric squares described above)
- weights (glass or Plexiglas)
- fan
- thermometer

Procedure

To begin, vacuum the textile to be tested. This will prevent loose dirt or fibres from masking the results of the colourfastness test (see CCI Notes 13/7 *Washing Non-coloured Textiles* for more detailed information on surface cleaning).

All the coloured components of the artifact (e.g. warp and weft yarns, sewing threads, old repairs, and embellishments) must be individually tested.

The colourfastness test may damage the test area or the surface finish, so locate small unobtrusive areas of each colour of fabric (e.g. reverse side of embroidery, seam allowance, loose threads from the artifact, the hem). Lay a few squares of blotting paper on top of a square of Mylar, and position this assembly under the area to be tested. Use the eyedropper to place a small drop of purified water at the proposed wash temperature (e.g.

between 20 and 30°C) onto the area to be tested, and allow the liquid to be absorbed by the fabric or thread. Cover with squares of blotting paper, a Mylar square, and a light weight.

After a few seconds, check whether the colour has transferred from the fabric to the blotting paper. If the colour has not transferred, replace the blotter, Mylar, and weight. Check again after 2 minutes and after 5 minutes. If the test is still negative, check again after 15 minutes and after 30 minutes. If, at any point during the test, dye from the textile is seen on the blotters, stop the test; remove the blotters, Mylar, and weights; and dry the textile with the aid of a cool fan.

If the colours in the textile did not transfer when tested with purified water, then the textile should be tested with the proposed cleaning solution to ensure that the dyes will not transfer during washing. Repeat the above test procedure in the same area using the detergent solution at the proposed wash concentration and temperature. After the test, use the eyedropper to rinse the test area with purified water to remove the detergent residue and blot the area dry.

If there is evidence of colour movement at any time during the test procedure, the object should not be washed. However, the textile may be a candidate for dry cleaning (see CCI Notes 13/13 *Commercial Dry Cleaning of Museum Textiles*).

Even when textiles have been thoroughly tested for colourfastness, proceed with caution when washing them because sometimes dyes will run unexpectedly during washing or drying.

Suppliers

Note: The following information is provided only to assist the reader. Inclusion of a company in this list does not in any way imply endorsement by the Canadian Conservation Institute.

Anionic detergent:
conservation supply houses such as:

Woolfitt's
www.woolfitts.com

Carr McLean
www.carrmclean.ca

BiblioFiche
www.biblioFiche.com

University Products of Canada
www.archivalproducts.ca

Blotting paper, Mylar:
art supply stores such as:

Carr Mclean
www.carrmclean.ca

conservation supply houses (see above)

Chromatography paper:
scientific supply houses such as:

Fisher Scientific
www.fishersci.ca

Cotton fabric:
fabric stores

Purified water:
medical supply stores

Bibliography

Finch, K., and G. Putnam. *Caring for Textiles*. New York, NY: Watson-Guption Publications, 1977.

Textile Conservation Group. "Spot Tests for Colorfastness." *Textile Conservation Catalog*. Chapter 6. Washington, DC: Textile Specialty Group of the American Institute for Conservation, 1994.

by the staff of the CCI Textile Lab

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