



Conserve O Gram

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Dry Cleaning Museum Textiles

If carefully considered, planned, and executed, dry cleaning may be an acceptable cleaning option for some museum textiles. Certain types of soiling are best reduced through cleaning with solvents other than water, and professional dry cleaners are equipped to provide this service. To successfully withstand the dry cleaning process, however, a textile must be strong and in good condition, and special handling procedures must be followed. **Very few museum textiles are good candidates for dry cleaning.**

Examination and Assessment

When considering a museum textile for dry cleaning, you must carefully and closely examine it to determine if the textile is a suitable candidate. In a clean, well-lit workspace, open out the textile and examine it in its entirety.

Consider the types of stains and soiling present:

- Is there an overall generalized gray, grimy soiling?
- Are there greasy or oily spots?
- In garments, are there wearing soils—perspiration stains and/or transferred skin oils?
- Is paint, nail polish, or similar foreign material present?
- Are there brown, oxidized stains present?
- Is there overall yellow or brown discoloration?
- Are there liquid stains with edge ringing or tide lines?

In addition, consider how stains may reflect the history or use of a textile. Should the textile be cleaned at all?

Consider how the textile is made and what it is made from:

- What is its method of construction?
- Does it contain more than one type of fabric?
- What is the fiber content of each component fabric?
- Are the fabrics colored by dyeing?
- Are there attached embellishments like beads, buckles, buttons, lace, and rhinestones?
- What materials are the embellishments made from?

Consider the textile's condition:

- Are its fibers strong and intact, or weak and degraded?
- Is there any damage, such as holes, splits, frayed or abraded areas?

Assessment of each and every component of a textile is necessary to determine if dry cleaning is a feasible option. If the soiling is predominantly gray, grimy, oily or greasy, dry cleaning may be an effective form of cleaning. Soiling of this nature usually consists of fine inorganic particulates, greases and oils, or chemically soluble materials. This type of soiling is typically more readily dispersed in non-aqueous solvent systems, like those used in dry cleaning.

If the soiling is predominantly a generalized yellow-brown discoloration or rings and tide lines, conservation wet cleaning may be a more effective option. Oxidized brown stains are difficult to reduce in any type of solvent system, wet or dry.

Once soiling has been characterized, the component materials of a textile should be assessed. Consider the fiber content of all fabrics present and the composition of all embellishments, structural materials and closures. Protein fibers, like silk and wool, typically respond well to dry cleaning. Some materials, however, such as coatings on beads and sequins are solvent soluble and therefore cannot be cleaned. The solubility of some dyes can also make cleaning impossible. Potentially problematic materials should be noted and tested by the dry cleaner before cleaning.

The structure and physical integrity of a textile will also impact its ability to be successfully dry cleaned. For example, delicate fabric structures, such as large lace veils, may not withstand the physical stresses inherent in the process. If a textile is degraded, fragile, weak, and/or damaged, dry cleaning is probably not a viable option. On the other hand, complex garments (those consisting of several dissimilar fabrics that may shrink at different rates in water) may only be safe in the essentially non-aqueous environment of dry cleaning. Consultation with a textile conservator or professional dry cleaner can be helpful in assessing the complex nature of many textiles.

Commercial Dry Cleaning

The following generalized description of commercial dry cleaning illustrates the rigorous conditions a textile can be exposed to during this process. The commercial dry cleaning process consists of five basic steps:

- pre-spotting
- immersion cleaning in solvent

- solvent extraction
- drying
- finishing

In the pre-spotting step, visible spots and stains are treated with a variety of proprietary formulations designed to remove specific classes of soiling. An experienced dry cleaner can classify the type of soiling present on a textile and will treat it accordingly. Non-aqueous, “dry,” solvent-based formulations, and acidic and/or alkaline “wet” formulations are applied to specific stains and soiling by hand working on a dry cleaning spotting table. Mechanical action is often necessary to break up soiling and is achieved by tamping the area being treated with a stiff flat brush. The area is then flushed with dry cleaning solvent and/or a blast of steam, depending upon which pre-spotting agents are used.

The pre-treated textile is then transferred to a dry cleaning machine for immersion cleaning in dry cleaning solvent. There are two types of solvent typically used in the United States today: DF 2000, a Stoddard-type petroleum solvent, and perchloroethylene, a chlorinated hydrocarbon. Perchloroethylene, known as “perc” in the dry cleaning industry, is most commonly used.

Dry cleaning machines are much like tumble dryers or front-loading washing machines. They have a large drum into which the dry cleaner places the items to be cleaned. In the commercial clothes cleaning process, garments are sorted by color and weight, and about 50 pounds of material is cleaned at one time. The dry cleaning solvent, along with a detergent charge to boost cleaning effectiveness, automatically enters the machine, and the load is agitated by tumbling. The detergent-charged bath may be followed by a rinse bath of clear solvent. When the cleaning cycle is complete, the machine is drained, and solvent remaining in the textiles is extracted by spinning. The drying process is done in the same machine. Heat, up to 160°F, is introduced while

the drum rotates, tumbling the textiles until they are dry. Solvent driven off during the drying process is recaptured by the machine and used again in cleaning subsequent loads. Following drying, the textiles are removed from the machine and hand finished by steaming and pressing, as necessary.

Special precautions and handling, as well as modifications to this commercial process, are essential for safe dry cleaning of museum textiles.

Selecting a Dry Cleaner

Locating a dry cleaner willing and able to work with museum textiles can be challenging. Not everyone has the experience and facilities necessary, nor the interest in disrupting their regular production process to accommodate special needs. The best place to start is by gathering recommendations. Ask local museums and individuals that use dry cleaners if they have a vendor they are happy with. A bridal shop or boutique may also be able to provide recommendations. Many have established relationships with a dry cleaner used to caring for fine quality, high-end textiles that will be willing to accommodate special handling needs. Look for a dry cleaner with on-site cleaning facilities. Check the dry cleaner's professional references and affiliations. Speak with the dry cleaner and explain your needs. Someone with older equipment may best be able to meet them, as new dry cleaning machines are highly automated and do not allow the operator a great deal of control. Expect and be willing to pay more for the special services you require than you would for standard dry cleaning.

Handling Requirements for the Dry Cleaner

Discuss the following with your dry cleaner:

- Require that all component fabrics, dyes, and attached embellishments be tested for solubility in the dry cleaning solvent to be used.

- Require that only one textile at a time be cleaned.
- Require that the solvent used be virgin or freshly distilled.
- Understand pre-spotting methods and discuss them with the dry cleaner if they are to be used.
- If a detergent charge is necessary to enhance the solvent's cleaning power, a 1.25 – 2% charge is within the recommended effective range. Select a concentration based upon the degree of soiling present on the textile.
- If a detergent charge is added to the cleaning cycle, require rinsing with clear, freshly distilled solvent.
- Require minimal agitation during the cleaning cycle. Older machines often allow the operator to stop and start the drum without making a full rotation.
- Eliminate or minimize the duration of the solvent extraction cycle. Draining alone may be sufficient to remove enough solvent to proceed with drying.
- During drying, eliminate tumbling and request that temperatures not exceed 125°F. (The temperature necessary for solvent vaporization is at least 100°F.)
- Spotting pre-treatments and finishing by pressing and steaming may not be essential. Request that these steps be eliminated if unnecessary.

Planning for Dry Cleaning a Museum Textile

When you have located a dry cleaner that is willing and able to meet your needs, arrange a consultation during which you can examine the textile together. Point out potentially problematic materials, and stains and soiling of particular

concern that you noted during your initial examination and assessment. If weak or damaged areas are present, point these out as well.

If the dry cleaner is comfortable working with the textile, you can then make plans to proceed with cleaning. Determine if spotting pre-treatments are necessary. From a conservation point of view, the results achieved through these stain reduction procedures often do not warrant the risks they pose to the textile. If minimal success is expected, or if the staining is not overly obtrusive, it may be preferable to forego spotting pre-treatment. Also discuss whether the textile will need to be finished with steaming and pressing. The small amount of water introduced to the dry cleaning solvent when it is charged with detergent often results in wrinkling. A cotton lined silk bodice, for example, may require steaming to return it to an acceptable appearance after cleaning. A small wool tapestry, on the other hand may not require any finishing at all.

Protecting the Textile

When the decision to proceed with dry cleaning has been made with the dry cleaner, return the textile to your clean, well-lit workspace and examine it once again. This time concentrate on its physical condition. Check all fabrics and seams to be sure they are intact. Look for wear or fraying along fold edges. If weak or vulnerable areas are found, have a skilled needle-worker or conservator protect them by covering and supporting the areas with a light weight woven or knitted white cotton fabric. The fabric

should be basted in place through adjacent strong areas in the textile with white cotton sewing thread. Next, examine any closures and attached embellishments. Confirm that they are well attached and will not snag or abrade the textile as it is agitated during the cleaning process. Some attachments are vulnerable to damage by abrasion. As a precaution, it may be advisable to cover all closures and attachments with a protective cloth before dry cleaning. Baste it in place as described above. Following cleaning, clip basting threads every stitch or so and carefully remove them to release the protective fabric coverings.

Conclusion

Dry cleaning is not the easy cleaning answer for all museum textiles. In many cases, it is not an appropriate technique and should not be used. It can, however, yield good results in some instances, and if carefully considered and planned, dry cleaning is an acceptable means of cleaning selected museum textiles.

Kathleen Keifer
Private Conservator
20 Camilla Avenue
Dracut, Massachusetts 01826

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