



Museum Textile Services

The Gore-Tex Humidification System

Fragile and historic textiles pose many challenges to textile conservators, especially when the aim is to reduce wrinkles or to rehydrate dry and brittle fibers to allow for safer handling. However, all of this can be accomplished using Gore-Tex (Polytetrafluoroethylene, or PTFE.) The pores in Gore-tex membrane are large enough for water vapor to pass through but too small for water droplets, which gives it the “breathability” desired in clothing and shoes. This low-risk, high-tech humidification system introduces cool water vapor into thirsty textile fibers without the use of heat or pressure, and requires no electricity. Watch our [video](#) of Gore-Tex humidification in action.

To create a Gore-Tex humidification chamber, you need the following supplies:

- A clean, flat work surface—ideally a pinable surface, such as plastic-covered honeycomb board or homasote.
- Gore-tex membrane, laminated onto an inert support material such as Nomex, larger than your textile.
- Enough archival blotting paper or blotting fabric to place both below and above your textile.
- Polyethylene sheeting of any thickness or color. A garbage bag works in a pinch.
- Weights to go around the perimeter of your textile.
- Cold water (bottled, distilled or deionized).

Humidification Steps

1. Choose a blotter that is larger than your textile. Place the blotter on a water-proof surface, such as a plastic table, Coroplast, or polyethylene. Place your textile on the blotter.
2. Cover your textile with Gore-tex. Placing the Gore-tex membrane-side-down is preferred so that water vapor does not form droplets on the underside.
3. Place a wet blotter on top of the Gore-tex, making sure the blotter does not extend beyond the edges of the Gore-Tex and touch the textile or the dry blotter below. Your blotter can be more or less wet depending on how dry your textile is, but generally wetter is better.
4. Place a piece of polyethylene over the wet blotter and seal all of the edges with weights (books also work well). A smaller textile can be humidified inside a zip-top bag.
5. Leave your textile in the chamber for 10 minutes and then test it for dampness. Check every 10 minutes until the textile is damp. The goal is to get it moistened with water vapor but not wet. It should feel cool to the touch and wrinkles should begin to relax. Thin textiles may take as little as 10 minutes; thicker ones 30 minutes or more.
6. When your textile is rehydrated, you can simply open the chamber, remove the top blotter and Gore-Tex, and allow the textile to air dry. You can also block the textile with pins to encourage further wrinkle removal as it dries. The textile may need to be moved from the blotter to a pinable surface at this time.



Textile is on the blotter



Chamber is sealed



Textile is pinned out

You can adjust the variables in this system—such as time, moisture, whether the Gore-tex is membrane-up or down, and placement of blotters—to suit each situation. Never leave a textile in a Gore-Tex chamber unattended, as over-wetting can occur, causing dye bleed or fiber weakening.