



# GETTING THE HANGER OUT OF IT

## CONSERVATION OF A FIRE-DAMAGED CHRISTENING ROBE

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### Background

The object is a yoked christening robe with a high drawstring neckline, elbow-length puff sleeves and A-line skirt, with an opening at the back. The yoke and skirt, made of undyed cotton, are decorated with lace and whitework embroidery insertions featuring geometric designs. The neck, cuffs and skirt are trimmed with lace.

Along with two other christening robes, it was brought to the UofG Centre for Textile Conservation after they got damaged in a house fire in May 2018. Prior to that, the robes had been used and passed on to several members of the client's family from 1900 to 1941.

### Condition

Prior to the treatment, the object was in poor condition and had suffered fire damage.

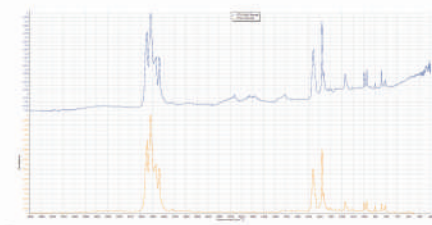


The robe came with a deformed plastic hanger that stuck to the fabric during the fire, causing distortion and structural damage, particularly to the yoke and sleeves.

Especially in areas that came into contact with heat, the fabric was discoloured and brittle due to thermal oxidation.

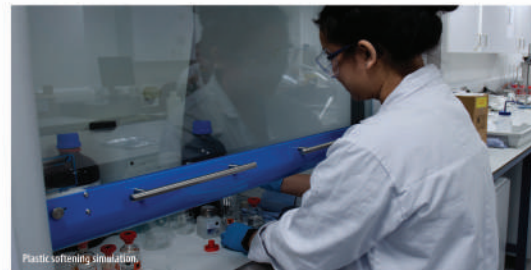
In addition to the hanger, other foreign materials were stuck to the garment including other pieces of plastic, soot, feathers and wax. There were areas of ingrained soiling.

### Testing

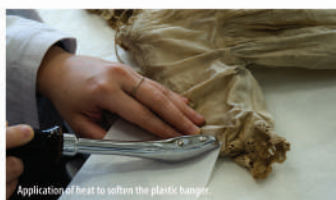


Pieces were cut from the hanger for testing. Using IR spectroscopy, the hanger was identified as polypropylene, a hydrocarbon and a thermoplastic that can be softened and reshaped by heating. The spectra of the plastic hanger (top) and polypropylene (bottom) are shown above.

A range of nonpolar and slightly polar solvents were tested at room temperature. None of the solvents were found to induce tackiness to the plastic. A piece was heated on a hot plate to observe its melting behaviour. First signs of tackiness on the plastic were observed at around 130°C, it softened at 140°C, and lost its initial shape at 160°C. Using a mock-up, it was found that the plastic and the fabric can be separated by peeling after heating it with a heated spatula at 140 to 150°C.



### Treatment



Heat was applied using a heated spatula to soften the plastic stuck to the fabric at 150°C for 10 seconds. This allowed the fabric to be peeled off with minimal damage. Other pieces of plastic and big foreign materials were removed by hand or using tweezers. The fabric was cleaned mechanically using smoke sponges and low powered suction, which took up soot and other loose particles.

The garment was wet-cleaned in a solution of anionic detergent Hostapon® TPHC, and then in a more dilute detergent solution with chelating agent sodium citrate to remove oxidation products and soiling. Apart from areas that had browned due to the irreversible cross-linking of polymer chains during thermal degradation, the discolouration of the fabric was generally reduced.

Stitched support was introduced to the structurally damaged areas. The damaged parts of the ground fabric were laid-couched onto patches of colour-matched cotton fabric. Edges of brittle fabric and damaged lace frills were overlaid with net.



### Selected References

- Schmiermund, Torsten. *The Chemistry Knowledge for Firefighters*. Book, Whole. Berlin, Heidelberg: Springer Berlin Heidelberg, 2023. <https://go.exlibris.link/KFZmChn3>.
- Timár-Balázs, Ágnes, and Dinah Eastop. 1998. *Chemical Principles of Textile Conservation*. Oxford: Butterworth-Heinemann. <https://go.exlibris.link/N67Xcw2h>.
- Toomer, Heather. *Baby Wore White: Robes for Special Occasions 1800-1910*. Book, Whole. Radstock: Heather Toomer Antique Lace, 2004. <https://go.exlibris.link/Lwz2M0mN>.

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