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## An Aqueous Treatment for Highly Damaged Manuscripts: Minimising the Risk of Mechanical Damage

The options for aqueous treatments on highly damaged papers are limited by a substantial risk of mechanical damage, which leads to a paradoxical situation in the case of manuscripts corroded by iron gall ink: the phytate treatment, its effectiveness clearly established, is not used on the most damaged of papers. The possible phytate treatment of severely damaged papers has been investigated on laboratory samples and originals (Rouchon et al 2012), which led to the formulation of a protocol relatively easy to implement that includes washing, treatment and lining. This protocol, presented here, could easily be extended to aqueous treatments not using calcium phytate. The process below does not include the preparation of the treatment solutions;

this can be found elsewhere (Reissland and Ligterink 2011).

### Materials

- > non woven polyester fabric, Hollytex<sup>®</sup>, 17 g/m<sup>2</sup> (Stouls),
- > silicone polyester film for gelatine sizing of Japanese paper (Stouls),
- > Japanese paper (Atlantis), woollen felts (Stouls), soft brush, spatula, (Dahlia) sprayer, gelatine (GMW).

### Tools

- > trays: slightly larger than the screen, base should be as flat as possible,
- > silkscreen frame, 43T polyester screen, internal size at least 5 cm larger than object to be treated (A. Buisine),
- > four blocks: approximately 1-2 cm high and heavy enough to remain immersed in water,

- > rigid board that fits in the silkscreen frame.

### Endnotes

- [1] Before treatment estimate the required volume of solution to be used. Put the screen in the tray with the four blocks at the corners. Fill the tray with water until it touches the screen. Only a very light pressure with the finger should force water through the mesh and no water should remain on the screen when the pressure is released. When the system is calibrated, remove and dry the screen and measure the volume of water.
- [2] Covering the document with a non-woven polyester fabric and with woollen felts is optional. They keep the document flat and delay drying while one prepares the lining.
- [3] If no lining is required, one could also allow the document to dry completely.
- [4] To prepare a gelatine-sized Japanese paper: lay the Japanese paper on a piece of silicone polyester film. Gently brush the Japanese paper with a 2 % w/v gelatine solution. Remove the Japanese paper when completely dry (Van Velzen 2011).
- [5] This operation is easier to carry out



1 Place the document on the screen and cover it with Hollytex<sup>®</sup>. Spray the document evenly with water.



2 The document should not be wet, but simply humidified. To achieve a more even humidification, you could leave the screen with document and Hollytex<sup>®</sup> between two moist felts for a couple of minutes.



3 Fill the tray with the required amount of solution [1]. Remove felts and Hollytex<sup>®</sup> and place the screen in the tray. Ease the screen down slowly to avoid air bubbles being trapped under the screen.



4 The weight of the document pushes the solution through the mesh into the paper by capillarity. Keep the solution agitated from time to time by gently moving a brush in the tray.



5 The screen can easily be moved from bath to bath. In order to remove excess solution before placing in the next bath, the screen may be laid on blotting paper. DO NOT wipe the verso of the screen as this will disturb the object's placement.



6 After the last bath, lay the screen for some seconds on blotting paper in order to remove excess solution. Gently dry the margins of the verso of the screen with absorbing paper but DO NOT touch the object itself.

when the document is not completely dry. Attention should be paid to areas of loss: there the Japanese paper adheres to the Hollytex®.

### Suppliers

Atlantis France, 35, rue du Ballon, 93 160 Noisy le Grand, France, [www.atlantis-france.com](http://www.atlantis-france.com), Tel +33-1-4815515-0, Fax +33-1-4815515-1 (Japanese paper RK00; paper Nao).  
A. Buisine, 78 rue Felix Faure, 92700 Colombes, France, Tel +33-1-41192970, Fax +33-1-4785-8210, [www.serigraphie-boutique.fr](http://www.serigraphie-boutique.fr) (silkscreen frame).

GMW Gabi Kleindorfer, Aster Str. 9, 84186 Vilsheim, Germany, Tel +49-8706-1094, Fax +49-8706-559, [www.gmw-gabikleindorfer.de](http://www.gmw-gabikleindorfer.de) (gelatine order no 40 321).

Joop Stoop, 12 rue Lebrun, 75013 Paris, France, Tel +33-1-55438995, Fax +33-1-55438996, [www.joopstoop.fr](http://www.joopstoop.fr) (woollen felts).

Stouls, 9-11 rue de l'Orme Saint-Germain, 91165 Champlan Cedex, Tel +33-1-69101070, [www.stouls.com](http://www.stouls.com) (non-woven polyester, Hollytex®; silicone polyester film order n° POS36RL; blotting paper).

### References

Reissland, B., and Ligterink, F. (2011): Rijksdienst voor het Cultureel Erfgoed <<http://ink-corrosion.org/phytate>> (viewed 20 may, 2012).

Rouchon, V., Desroches, M., Duplat, V., Letouzey, M., and Stordiau-Pallot, J. (2012): Methods of Aqueous Treatments—The Last Report for Badly Damaged Iron Gall Ink Manuscripts. See pp 7-13 in this JPC issue.

Van Velzen, Bas (2011): Remoistenable Tissue. In. *Journal of PaperConservation*, Vol 12, No 1, p 36.



7 Lay the screen on a felt and cover the document with Hollytex® and felt [2]. Let the document dry partially. Keep an eye on the document until it no longer adheres to the mesh [3].



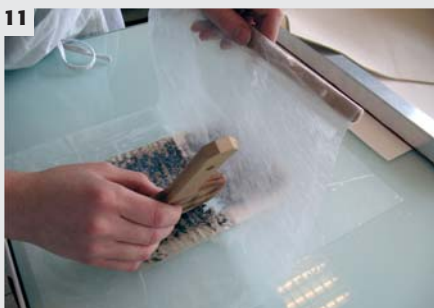
8 When the document is sufficiently dry place a rigid board on top of the felts. Firmly hold the packet and turn over. Carefully lift the screen taking care that the document does not adhere to the mesh.



9 Transfer the Hollytex® and document to a glass plate. Gently apply a wet brush to the margin of the Hollytex® to adhere it to the glass. If the document starts to dry too quickly, cover it with a moist felt.



10 Place gelatine-sized Japanese paper [4] on a second piece of Hollytex®. Re-activate the gelatine with a soft brush using a 2 % w/v gelatine solution. Lift the gelatine sized paper and the Hollytex® with a stick.



11 Slowly lower the stick with the gelatine-sized Japanese paper onto the document using a dry soft brush. Then carefully remove the top Hollytex® layer.



12 Place the Hollytex® and lined document between woollen felts. Weigh down ONLY with a wooden board. Wait until the margins of the Japanese paper are dry.



13 Release the margins of the Japanese paper adhering to the Hollytex®. This can be done mechanically using a thin spatula.



14 Turn over the Hollytex® and lined document. Gently peel off the nonwoven polyester fabric from the lined document [5]. Finally place the lined document between woollen felts. Weigh down with a wooden board only and let dry completely.

### Authors

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> If you have a clever, pragmatic idea that you want to share with our readers, please contact: Bas van Velzen <[elandbas@mac.com](mailto:elandbas@mac.com)>.