



A New Mending Material: Nanocellulose Film

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A New Mending Material: Nanocellulose Film

Introduction

Considering the results of an experiment carried out at the scientific lab of the National Library of France, it is clear that the nanocellulose film combined with a 5%-Klucel G[®] in ethanol can be a good solution to mend tears on paper objects, made of translucent or transparent supports (Figures 1–8).^[1] This material could also be used to treat other structural problems, such as weaknesses, losses or delamination of the media, visible on a wide range of graphic, photographic and cinematographic artworks and documents, old or contemporary. We would like to insist on the fact that even if they are from the field of nanotechnology, nanocellulose films are not dangerous for health since they are already formed sheets, not in the form of powder or spray, and so its nanoparticles cannot be inhaled.

Materials Used

- Nanocellulose film sheet
- 5%-Klucel G[®] in ethanol
- Water

Tools Used

- Sharp scissors
- Pointed tweezers
- Soft brush
- Teflon spatula
- Non-woven polyester (smooth surface like Bondina[®])
- Weight
- Glass or Plexiglas[®] plate

- Piece of black cardboard
- Light table

Note

- [1] This method is applicable on a range of thin translucent papers, including thin handmade wove papers (like the one visible on the pictures), to mend the tears when there are some problems related to the translucency, like watermarks.

Suppliers

- Nanocellulose films, similar to the ones used in this study, will be available soon as A4 sheets and related workshops will be organized for conservation professionals. More information at www.napanoper.com
- Klucel G, Stouls conservation, rue de l'Orme Saint-Germain, 91160 Champlan, France, Tel: +33 1 69 10 10 70, www.stouls.com/index.php
- Atlantis, 1 avenue Louison Bobet, 94120 Fontenay-sous-Bois, France, Tel: +33 1 60 93 15 60, www.atlantis-france.com (Ref: H3228, Bondina 30 g m⁻²)
- VWR ProLabo, 201 rue Carnot, 94126 Fontenay-sous-Bois, France, Tel: +33 45 14 85 00, www.vwr.com (Ref: 20821.296, Ethanol absolute NORMAPUR)

Author

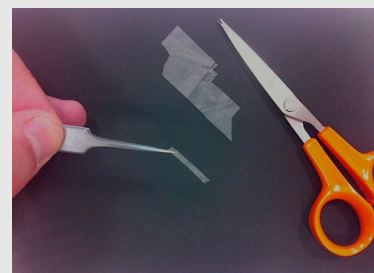
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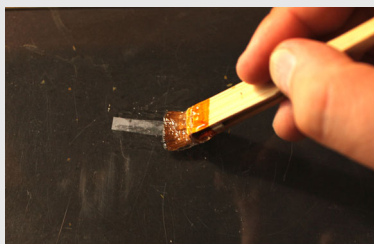
1. Mending tools and materials are prepared. Be sure to have clean hands, or wear thin fabric gloves to avoid leaving any greasy residues on the surface of the material



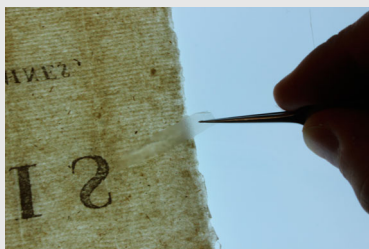
2. After surface-cleaning the edges of the tear on the document to be treated, tiny strips of MFC film are cut with sharp scissors, to the most adapted width (generally between 2 and 4mm)



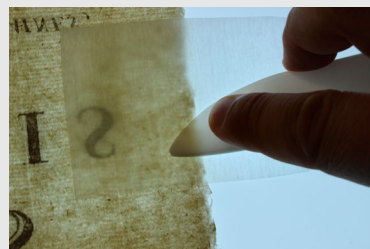
3. It is better to manipulate the MFC strips with pointed tweezers as much as possible



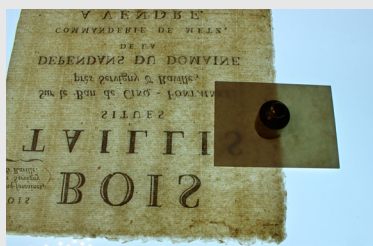
4. The strip is then pasted with Klucel G® on a glass or a Plexiglas® plate, always using a brush with soft hairs to avoid any weakening of the strip



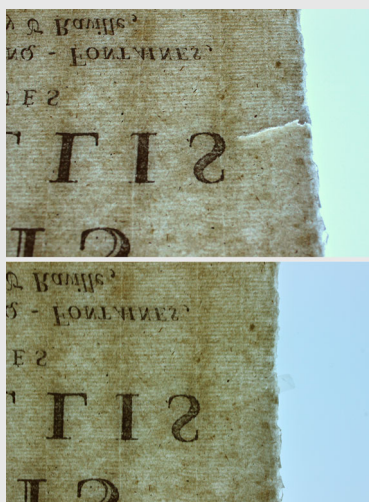
5. The strip is then applied immediately along the tear of the document, with a direct control of the process on the light table



6. To ensure good adherence, the mend is then covered with a piece of non-woven polyester with a smooth surface (such as a piece of Bondina®) to avoid marking the surface of the MFC film while it is drying. Apply light pressure using a Teflon spatula in circular motion



7. Once applied to the tear, the mend is covered with a piece of Bondina®, a piece of blotter and is allow to dry underweight for 10-20 minutes



8. Once the mend is dried, the excess of the strip can be removed using sharp scissors. If needed, MFC film strips can be easily removed with a brush slightly dampened with deionized water and the blade of a scalpel or pointed tweezers. With this method, MFC film strips can be used as a classic mending material on this kind of documents. If you have a clever, pragmatic idea that you want to share with our readers, please contact