

Albertina Compress

General Information

Prefabricated amylase poultices have been developed to facilitate the local and simple enzymatic removal of non-swellable, starch-based adhesives with admixtures of alum and/or protein glue with the use of less moisture from paper supports.

Enzymatic Starch Decomposition

Enzymes are proteins with catalytic action which enable clearly determined decomposition reactions on natural materials. Amylases can in a specific way catalyze the decomposition of 1,4-a-glycosidic bonds in starch molecules. The decomposition and depolymerization of starch cause liquefaction of the adhesive resulting in the formation of oligo-saccharides as by-products. The decomposed starch loses its adhesive properties. The implemented bacterial amylase is not contaminated, thus the further decomposition of cellulose, proteins or other carbohydrates is not possible. Materials such as paper, parchment, leather and even textiles cannot be damaged.

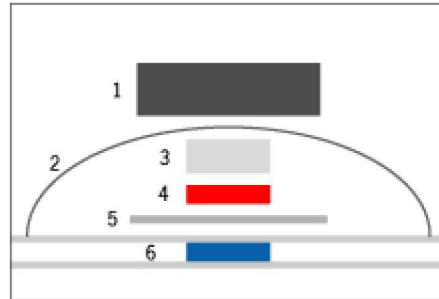
Mechanism of Action

The amylase poultices consist of synthetic fleece materials with water-swellable viscous medium enriched with methyl cellulose. The viscous medium also contains low contents of purified α -amylase and other auxiliary components. By moistening with water the amylase poultice gets activated. Adjustment of its pH-values by means of buffer substances is generally not required. Achieved through proper application, the moisture content of the prefabricated amylase poultice as well as its ability to retain moisture throughout the dismantling procedure, account for its high efficiency.

Special Attention

The application of enzymes and the enzymatic activity of the Albertina poultice (Compress) is a highly specialized technique developed for use by experienced conservators. For correct and successful application of the Albertina poultice particularly regarding moistening experience is required. Initially we recommend testing the technique on sample materials. It is also important to make sure that the adhesive to be removed is starch-based.

Enzyme poultice for the removal of non-swellable starch based adhesives.



- 1 Weight
- 2 Polyester film
- 3 Moistening material
- 4 Amylase poultice
- 5 Paper interleaf
- 6 Paper with adhesive

Necessary materials and tools

The Albertina-Compress set comprises of:

- Amylase poultice
- Interleaf paper
- Blotting paper or moistening fleece material. Moistening the fleece material is more suitable for poultices meant for slow application on penetrable papers, because of their ability to retain moisture for a longer period of time as compared to the blotting paper.

Additional Mechanical Equipment Required:

- Water-proof film. We recommend polyester film. The film is required to cover the poultice and is also used as a base working surface while moistening the poultice material.
- Weight. An either too heavy or too light weight can prevent the correct functioning of the amylase poultice. Approximately 150-200 g weight is required for the 10 cm² treatment area.
- De-mineralized water. We recommend adding 5% ethanol to the water.
- Pincers, Scissors, Brush, Tweezers, and Cotton swabs.
- Spatula. A narrow Teflon spatula is well-suited to remove and separate the paper from the adhesive material.

Cutting the Materials

- Cut the Albertina poultice (compress) and moistening material/blotting paper to the size of the adhesive area.
- Interleaf paper should be cut at each side 2 mm longer than the Albertina poultice.
- Cover the whole Albertina poultice with the polyester film which should be cut accordingly, each side 4 cm longer than the Albertina poultice.

Moistening and Laying Application of the Albertina Poultice:

- To construct the poultice assembly please follow the pattern illustrated in the picture shown above.
- Use the polyester film as the work base surface and moisten all materials using a brush.
- In the case of papers that can be moistened, moisten the substrate paper over the area of adhesion where the enzyme poultice should be placed.
- Soak interleaf paper in water, use blotting paper to reduce moisture content and then apply to the adhesion area to be treated.
- Evenly moisten the Albertina poultice (about 0,08 ml of water per 2x2 cm treatment area is necessary). Make sure no enzyme gel gets pressed out of the Albertina poultice on to the polyester film, which is used as the work base surface. Place the moistened poultice with the smooth side facing upwards on the interleaf paper.
- Soak moistening fleece material to provide even penetration of water and carefully remove excess water by means of a blotter. As lower limit 0,4 ml water per 1x2 cm treatment area can be considered. Then place the moistened fleece (smooth side to the surface under treatment) on the poultice assembly.
- The Albertina poultice must immediately be covered with a piece of polyester film and a weight put on top of it.

Check, Removal and Dismounting:

- After a short treatment time it is advisable to check whether the poultice materials are lying correctly enhancing even and homogenous penetration of the enzyme components throughout the adhesion area. It is important that the moistened paper is placed on the area being treated.
- The first attempt to detach the items glued together should be undertaken after 15-30 minutes depending upon the wetting properties of the papers.
- Whenever gentle detachment of the items is possible the residual liquefied starch paste should be removed with cotton swabs.
- It is advantageous to wash the whole item after the treatment. This is not necessary if the Albertina poultice has been applied correctly, in fact an after-treatment is neither required.

Important Tips

- Enzymes need humidity in order to begin chemical reactions. To prevent formation of tide lines it is important to avoid superfluous moisture of the poultice. This can be obtained by adding 5% ethanol to the applied water. Alcohol concentrations higher than 5% lead to denaturing of the enzyme.
- Enough weight should be put on top of the poultice to guarantee the even distribution and migration of the enzyme. The poultice is ineffective if not evenly placed because of the lack of proper contact which prevents enzyme migration.
- Working at elevated temperature enhances the reaction rate thus reducing the dismounting time. The amount of moisture used, the thickness and the penetration behavior of the adhesive are more important than the influence of elevated temperature.
- In the case of papers difficult to wet pre-moistening is recommended.
- The stated moistening values are the absolute minimal values, reducing the risk factor for tide lines to a minimum.

Storage

- Keep the Albertina poultice well closed and stored under dry and cool (approx. 5° C) conditions. In original packaging the poultice can be stored for a period of at least 12 months. After opening the packaging, keep the poultice away from direct light.

Precautions

- If properly used the poultice (Albertina- Compress) causes no injury of health since the enzyme substrate only decomposes carbohydrates (starch).
- In order to prevent any kind of allergic reactions, we recommend to avoid direct skin contact and to wash hands directly after implementation.

Literature/Bibliography

- Schwartz, I.; Blüher, A.; Banik, G.; Maurer, K-H.; Thobois, E.; The development of a Ready-For-Use Poultice for Local Removal of Starch Paste by Enzymatic Action. Restaurator 20 (1999): 225-244
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