

# EVALUATION OF THE MATERIALS USED FOR THE PRESERVATION AND STORAGE OF LIBRARY COLLECTIONS

*Gabriela Aleksić, National and University Library in Zagreb, CRO, galeksic@nsk.hr*  
*Tomislav Cigula, PhD, Faculty of Graphic Arts - University of Zagreb, CRO, tcigula@grf.hr*

The preservation of library materials poses a great concern for those libraries that care of cultural heritage objects, since the stability of the environmental conditions presents a difficult goal to achieve on a daily basis.

The National and University Library in Zagreb is a large system. It is also a place of storage for various library objects (manuscripts, books, newspapers, maps, atlases, drawings, microfilms...) that require different approach to their preservation. One of the most effective methods of preserving the objects is their encasement.

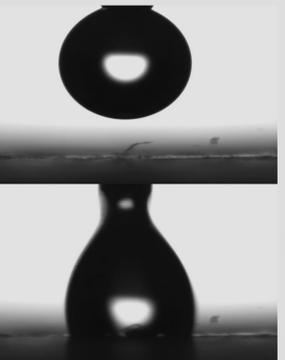
Preservation enclosures in the storage systems of the Library are generally in-house made, with their design based on standard references and common conservation practices. But the materials used for making these enclosures are rarely chosen with consideration to their overall properties and the requirements of the particular storage system.

The aim of this work was to address an ongoing demand for more preferable materials in the conservation field. Since the subject is also relating to several aspects of preservation, the results should provide information useful to both conservators and other experts. Furthermore, the objective of this work was to provide an insight into the importance of choosing the materials that fit the needs of an individual object, as well as the entire collection.

The efficiency of enclosure materials is largely based on their mechanical strength, water resistance and an ability to act as a barrier.



*Performing Cobb test & Cobb test apparatus*



*Contact angle measurements - the sessile drop method*

For the purpose of this research, the nine most common storage and preservation materials in the collections of the National and University Library in Zagreb were evaluated by determining their moisture content, Bekk smoothness, water absorbiveness (Cobb method), water vapour permeability, water wettability (contact angle), tensile strength, bursting strength (Mullen test), puncture strength and folding endurance. Samples were also exposed to high moisture and dry heat in order to determine the effect of these factors on the materials' mechanical properties.

The tests were conducted using paper and cardboard materials of different grammage (from 90 to 1555 g/m<sup>2</sup>), both neutral and buffered.

The results provided data needed to compare the materials and assess their potential usage.

Materials' overall quality, their targeted properties (assessed in this research) as well as the the storage requirements such as space-saving, weight minimization etc, should be considered when selecting the appropriate enclosure material.

However, determining enclosure material's quality doesn't say much of the preservation enclosure quality itself. How it's made and whether it's stacked and positioned on the shelf properly, will determine the final result.