

## Analysis of Three Gel Poultices in Paper Conservation

### ABSTRACT

Agarose, Carbopol, and Laponite gels were evaluated as alternatives to cellulose ether poultices for the local removal of moisture-sensitive adhesives on paper artifacts. These gels have noticeably different working properties than cellulose ethers and are useful in a variety of paper conservation applications. The color stability of these materials was analyzed in dry powder form and as gel residues on paper. Analysis was performed by UV-visible spectroscopy, combined with visual examination under normal illumination and long-wave ultraviolet radiation. Since earlier studies demonstrated that both Carbopol and Laponite contribute to the discoloration of paper after artificial aging, this study tested the effectiveness of a barrier tissue to block the deposition of residues on paper. Paper samples treated with Laponite were analyzed with a scanning electron microscope coupled with energy dispersive x-ray fluorescence spectroscopy (SEM-EDS) to identify residues. Visual and ultraviolet examination techniques demonstrated that Carbopol (pH adjusted with sodium hydroxide) and Laponite caused discoloration on paper when applied directly, and that a barrier tissue was effective at blocking the deposition of residues. Agarose did not show adverse effects.

### SUBSEQUENT PUBLICATION

Warda, Jeffrey, Irene Brückle, Anikó Bezúr, and Dan Kushel. 2007. Analysis of agarose, carbopol, and laponite gel poultices in paper conservation. *Journal of the American Institute for Conservation* 46 (3): 263–279.

JEFFREY WARDA  
Associate Conservator, Paper  
Solomon R. Guggenheim Museum  
New York, New York  
jwarda@guggenheim.org

IRENE BRÜCKLE, PhD  
Head of Conservation  
Kupferstichkabinett  
Staatliche Museen zu Berlin  
Berlin, Germany  
i.brueckle@smb.spk-berlin.de

ANIKÓ BEZÚR, PhD  
Andrew W. Mellon Research Scientist for the Museum  
of Fine Arts, Houston, and the Menil Collection  
The Museum of Fine Arts, Houston  
Houston, Texas  
abezur@mfa.org

DAN KUSHEL  
Distinguished Teaching Professor, Technical  
Examination and Documentation  
Art Conservation Department  
Buffalo State College  
Buffalo, New York  
kushelda@buffalostate.edu

---

Presented at the Book & Paper Group Session, AIC 33rd Annual Meeting, June 8–13, 2005, Minneapolis, Minnesota. Received for publication Fall 2005.