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An investigation into the use of plasma and rigid gellan gum for the removal of oxidized pressure-sensitive tape from works on paper containing highly soluble dyes

Pressure sensitive tapes (PST) can cause numerous problems to an artwork including adhesion to other objects, tears and skinning, trapping of surface dirt, staining, and changes to the paper support and media. With oxidation, the adhesive can break apart the cellulose chains in the support, causing catastrophic damage. Additionally, the longer an adhesive is left on the support, the harder it becomes to remove. This makes the removal of PSTs an essential treatment for works on paper that have been taped.

This study was developed to assess the effectiveness of several techniques for the targeted removal of oxidized PSTs and rubber cement from papers containing highly soluble dyes. Samples were created by applying Scotch Magic™ tape (acetate backing; acrylic adhesive), 3M 2214 paper tape (crepe paper backing; rubber adhesive), gummed brown paper tape (kraft paper backing; starch adhesive), and Slime rubber cement to several c.1900s dyed and undyed broadsides. These samples were then artificially aged to induce oxidation and crosslinking. The aged samples were 'treated' by the local application of solvent and the low-pressure suction table, application of solvent vapor using plasma, and the application of solvent using rigid gellan gum.

The samples were imaged using visible light photography, and Ultra-violet (UV) imaging. Spectrophotometer readings will also be taken to monitor changes in the samples before and after treatment. This project was motivated by the desire to develop a treatment protocol that will retain highly soluble dyes intact during treatment of PSTs. The results of this study will be presented at the conference.