

Abstract Submitted
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Selective Electroless Nickel Deposition on PMMA using Chloroform Pre-Treatment¹ NICHOLAS SIPES, James Madison University — In the past 5 years, we have discovered that chloroform promotes the adhesion of thin gold films to Poly(methyl methacrylate) surfaces. Based on this new understanding of the interaction of chloroform with PMMA and metal atoms, we were curious to see if chloroform would promote the adhesion of Nickel to PMMA deposited by electroless plating. My goal was to selectively electroless plate Nickel onto PMMA. Chloroform was spun-cast onto 1 inch square PMMA substrates. I used electrical tape to shield one half of the PMMA from the chloroform during spin-casting; this allowed for a direct comparison of treated vs. untreated. The samples were then put through hydrochloric acid and a series of baths provided by Transene Company Inc. to electrolessly deposit nickel on the sample. After many trials, there was a clear distinction in the adhesion strength of the Nickel to the plain PMMA surface vs. the chloroform pre-treated surface. Showing that it is possible to create chloroform sites via spin-casting for electroless nickel plating on PMMA opens up the challenge to better understand the chemistry taking place and to perfect the electroless plating process.

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