

CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1997																																				
DateRun:	10/24/1997																																				
Experimenters:	Jason Marshall, Prashant Trivedi																																				
ClientType:	Optical Coating																																				
ProjectNumber:	Project #1																																				
Substrates:	Glass/Quartz																																				
PartType:	Part																																				
Contaminants:	Buffing/Polishing Compounds, Soaps, Pitch																																				
Cleaning Methods:	Ultrasonics																																				
Analytical Methods:	Breath test, Visual																																				
Purpose:	Gather information on aqueous cleaning																																				
Experimental Procedure:	<p>The purpose of the trial was to gather information about aqueous cleaning for optical parts at the customer request.</p> <p>Four alkaline aqueous cleaners were made into five percent solutions with DI water in beakers. The cleaners were heated to 140 F on a hot plate. The solutions were place into a 40kHz ultrasonic tank filled with water at the same temperature. One glass slide was placed into the beaker and cleaned for five minutes. The part was then rinsed in two tap water rinses at 130 F for ten seconds each and then the part was rinsed in DI water at room temperature for ten seconds as well. The glass slide was then dried with a portable heater. Analysis of the sample was done visually under direct lighting. A second method involved breathing on the glass and watching how the condensate evaporated, as directed by the customer.</p> <p>SUBSTRATE MATERIAL: Glass</p> <p>CONTAMINANTS: Polishing compounds, pitch compounds and water-based soaps</p>																																				
Results:	Each of the cleaners removed the visible contaminants after the five-minute cleaning time. Analyzing the cleaned parts with the breath test revealed that there was some residue remaining after the rinsing. As the condensate evaporated, a rainbow ring could be seen. It was not clear whether the ring was from inadequate cleaning or by insufficient rinsing.																																				
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Conclusion:	The aqueous cleaners selected proved to be effective in removing the bulk of the contaminants from the glass surface. Upon further observations, the remaining residue might be eliminated by using only DI water in the rinsing. Possible cleaning/rinsing configurations were discussed with the client.																																				