CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1997
DateRun:	10/23/1997
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:

The purpose of the trial was to gather information about aqueous cleaning for optical parts at the customer request.

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.

SUBSTRATE MATERIAL: Glass
CONTAMINANTS: Polishing compounds, pitch compounds and water-based soaps

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.

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Buffing/Polishing Compounds, Soaps, Pitch				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
LPS Laboratories	Precision Clean Concentrate	5	0.00	☑	
MacDermid Industrial Products	ND 17	5	0.00	☑	
Oakite Products	Inproclean 3800	5	0.00	☑	

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.