CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2005
DateRun:	01/30/2005
Experimenters:	Jason Marshall
ClientType:	Optical Manufacturer
ProjectNumber:	Project #4
Substrates:	Plastic
PartType:	Part
Contaminants:	Mold Releases
Cleaning Methods:	
Analytical Methods:	Goniometry
Purpose:	To determine an analytical method that can be used to determine cleanliness of optic lenses.
Experimental Procedure:	Contact angle goniometry was selected as the analytical method to evaluate surface cleanliness. A small (2microL) drop of water was placed on the surface. A Sony digital video camera attached to an Olympus 10x microscope was position toward the water-substrate interface. On the video screen, the angle of deflection was measured from the image produced using a hand held protractor next to the screen. Three readings were taken on the surface in three locations in order to insure a proper distribution. Two dirty lenses and one clean lens were measured and compared to each other.
Results:	Analyzing the plastic lenses using contact angle measurements revealed that the cleaner surface had lower readings than the dirty surfaces. The clean surface had an average reading of 51degs. The two dirty lenses had higher averages, 59 and 63. The table below lists the readings for each lens analyzed.

Contact Angle Measurement		
Dirty Part -1		
Reading #	Location	Angle
1	Middle	60
3	Outer 3rd	48
4	Outer 3rd	68
	Average	59
Dirty Part -2		
1	Middle	85
2	Outer 3rd	45
3	Outer 3rd	60
	Average	63
Clean Part -3		
1	Middle	48
2	Outer 3rd	55
3	Outer 3rd	50
	Average	51

Summary:	
Conclusion:	Contact angle measurement appears to be a possible analytical method to analyze cleanliness of the plastic lenses. Next step will be to evaluate cleaners.