CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1997
DateRun:	06/10/1997
Experimenters:	Andrew Bray
ClientType:	Aluminum Anodizing Job Shop
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Waxes
Cleaning Methods:	Immersion/Soak
Analytical Methods:	
Purpose:	Work Performed to Date
Experimental Procedure:	
Results:	A preliminary analysis was performed to evaluate the cleanliness of bars cleaned at Aluminum Anodizing Job Shop. Microcam Analysis and Contact Angle Goniometry were used. Neither test showed significant difference in the level of cleanliness of any of the bars. All bars had high contact angles at all sites, indicating contamination across the surface of the bars (see Experimental Parameter Log, June 4, 1997). A site visit was made to Aluminum Anodizing Job Shop to analyze their process flow and identify the impact of the vapor degreaser elimination and to discuss the configuration of the new system on order at this time (three hot water rinses and a steam booth). Further analysis was performed on the test bars cleaned at Aluminum Anodizing Job Shop. The bars were rinsed in DI water and contacted angle goniometry was repeated to eliminate the possibility of the presence of a surface electrostatic charge. This test did not show significant difference in the level of cleanliness of any test bars (see Experimental Parameter Log, June 5, 1997). Researched: the use of steam cleaning to remove wax; how clean is clean enough in anodizing; questions posed to finishing listserve regarding these issues; searched P2TECH archives for items regarding wax removal and cleaning prior to anodizing; general research on waxes and anodizing. Performed cleaning trials to 1. replicate the cleaning procedures used on the test bars cleaned at Aluminum Anodizing Job Shop. 2. explore the effectiveness of different system configurations for the new system (i.e., steam, then rinse or rinse, then steam). 1. To explore the effectiveness of the cleaning solutions at removing the wax, bars where not steam stripped initially. The two wax strippers, at room temperature, were not effective at removing any wax. Two aqueous cleaners were also evaluated (see Experimental Parameter Log, June 12, 1997). 2. Steam appeared to be effective at removing the bulk of the wax when used as either the first or last step. Rinsing baths at temperatures of 175-185°F did not have a significant impact on bulk or trace wax removal when used before or after steam cleaning. When rinse bath temperatures were increased to 212 F, the trace wax removal was almost complete (see Experimental Parameter Log, 6-12-97). Future Work Repeat initial cleaning trial using steam strip as the first step, followed by 150 F soap cleaning (Super Blue Wax Stripper, Alcojet and Inproclean 3800) and two hot water rinses. Report on the results of this work and make recommendations to Aluminum Anodizing Job Shop in the event that the steam and water rinses are not effective at sufficient wax removal. Mail Jim English Lockheed report to give him an understanding of interpersonal issues of switching systems. Include any other perrtinent written material from TURI. Provide technical and lab support to Aluminum Anodizing Job Shop during the new system start-up. Final report to TURI on the work.
Summary:	
Conclusion:	