CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1996
DateRun:	04/03/1996
Experimenters:	Jay Jankauskas, Sutherman Ramesh
ClientType:	Coatings Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Adhesive, Coatings
Cleaning Methods:	
Analytical Methods:	FTIR, Microphotography
Purpose:	Determine amount of 69MC tolerated in DI rinse

Experimental Procedure:

The purpose of this trial is to try to determine what percentage of dragged out 69MC can be tolerated in DI rinse water for Coatings Manufacturer. The rinsing effects of seven different solutions will be evaluated:
1) 100% 16.4 M-ohm-cm DI water
2) 99% 16.4 M-ohm-cm DI water, 1% 69MC
3) 98% 16.4 M-ohm-cm DI water, 2% 69MC
4) 97% 16.4 M-ohm-cm DI water, 3% 69MC
5) 96% 16.4 M-ohm-cm DI water, 4% 69MC
6) 95% 16.4 M-ohm-cm DI water, 5% 69MC
7) 100% 69MC
Seven 304 Stainless Steel coupons were precleaned in the same manner as previous trials. One coupon was immersed in each rinsing solution for 10 minutes at room temperature. After immersion, the coupons were dried under a UV light for 10 minutes and then allowed to cool down for another 10 minutes.
Initial plans were to take an FTIR reading on the coupons exposed to the different rinses. This would have worked if the non-volatile residue had some organic contents, but this was not the case. Instead, the coupons were inspected with a microscope and pictures were taken of the coupons with the lab's Microcam
SUBSTRATE MATERIAL: 304 Stainless Steel
CONTAMINANTS: Durane Basecoat #51144

Results:

Rinsing spots come up as dark streaks on the Microcam pictures. 1% contamination of 69 MC showed no streaks (the dark spots were polished spots on the coupons). The 2% rinse looked good overall except for the one streak on the coupon. Anything above three percent showed heavy streaking.
From this info it seems that the maximum amount of 69 MC that would be desired would be 2%. For a fifteen-gallon DI rinse this would be .3 gallons of concentrated 69MC. So, the number of rinses that could be accomplished with the same 15-gallon charge should be:
Rinses = {.3} /{D*x}

D=amount of Drag-out cleaning solution from tank
x=volume fraction of 69MC in cleaning solution.

Summary:

Substrates:	Stainless Steel				
Contaminants:	Adhesive, Coatings				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
US Polychem Corporation	Product 69 MC		0.00	☑	

Conclusion: