CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009

DateRun: 03/22/2009

Experimenters: Jason Marshall, Junhee Cho

ClientType: Chemical Company

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To determine the time required to completely clean surface using manual wiping

Experimental Procedure: One supplied product and acetone were used at full strength and room temperature. Six preweighed 6061 H6 aluminum coupons were coated with the Steco Corporation Tap Magic cutting fluid using a handheld swab. Coupons were weighed a second time to determine the amount of fluid added to the surface.

Three coupons were placed in the Gardner Straight Line Washability unit. Cleaning solution was applied to the surface using a plastic squeeze bulb. A reinforced Kimberly Clark Wypall X60 paper towel was attached to the cleaning sled and soaked with the same cleaning product. Cleaning was conducted for 20 cycles and weights were checked to determine level of cleanliness. The 20 cycles of cleaning were repeated until the weights no longer changed. At that point final weights were recorded, and efficiencies calculated for each coupon cleaned.

Results: After 120 cycles, cleaning was stopped and the final efficiencies for both cleaning products were determined. The SWC 100 efficiency was still at the same level as it was found at 20 cycles. The acetone cleaned coupons had a slight increase in removal. The table lists the amount of soil added, the amount remaining after 120 cycles and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
SWC 100			
	0.1311	0.0096	92.68
	0.2750	0.0129	95.31
	0.1976	0.0147	92.56
Acetone			
	0.1317	0.0049	96.28
	0.1774	0.0081	95.43
	0.1866	0.0077	95.87

Summary:

Substrates:	Aluminum
Contaminants:	Cutting/Tapping Fluids

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Environmental Solution Products Inc	SWC 100	100	93.52	☑	
Fisher Scientific	Acetone (CAS: 67-64-1)	100	95.86	☑	

Conclusion: The efficiency leveled off for the SWC after the initial 20 cycles. This may be due to not having a clean towel to wipe the surface after the initial removal of the cutting fluid. A clean towel after the first cycle may improve efficiency and time. A follow up test will be conducted on larger stainless-steel coupons to better assess the time needed to remove the cutting fluid.