

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004  
 DateRun: 05/27/2004  
 Experimenters: Jason Marshall  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Sterling/Silver  
 PartType: Coupon  
 Contaminants: Cutting/Tapping Fluids  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Each product was used at full strength in a 250 ml beaker and heated to 96 F on a hot plate. Nine preweighed silver plated copper coupons were coated with the Houghton Chemical Cut-Max 135 (64742-52-5, 64741-96-4) using a handheld swab. Coupons were weighed a second time to determine the amount of soil added to each coupon. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. After cleaning parts were weighed a final time and efficiencies were calculated.

Cleaner	Initial wt	Final wt	% Removed
Vertrel MCA	0.10830	0.0086	92.06
	0.15790	0.0062	96.07
	0.15120	0.0080	94.71
Heavy Duty Degreaser C	0.08780	0.0063	92.82
	0.12900	0.0063	95.12
	0.12270	0.0085	93.07
Flux Remover C	0.16710	0.0194	88.39
	0.18970	0.0318	83.24
	0.33620	0.0224	93.34

Summary:		<b>Substrates:</b> Sterling/Silver			
		<b>Contaminants:</b> Cutting/Tapping Fluids			
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
DuPont	Vertrel MCA	100	94.28	<input checked="" type="checkbox"/>	
Micro Care	Heavy Duty Degreaser C	100	93.67	<input checked="" type="checkbox"/>	
Micro Care	Flux Remover C	100	88.32	<input checked="" type="checkbox"/>	

Conclusion: All three products removed over 85%.