

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009  
 DateRun: 02/10/2009  
 Experimenters: Johanna Oviedo  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Copper  
 PartType: Coupon  
 Contaminants: Inks  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Visual

Purpose: To test nontoxic industrial cleaning solutions for oil removal.

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Products were selected based on the compatibility of substrate and removal of foreign substance. Used 5% concentration and heated the samples at 135F. The steel coupons were immersed in a product for 5 minutes, rinsed for 30 seconds in tap water at 120F and dried in 30 seconds using compressed air is room temperature. Coupons were coated with used oil. Using a handheld swab and allowed to dry for 144 minutes at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. After cleaning process, the final weights were recorded, efficiencies were calculated and recorded.

Cleaner	Initial wt	Final wt	% Removed
Industrial Floor Cleaner			
	0.0184	0.0073	60.33
	0.0367	0.0322	12.26
	0.0380	0.0256	32.63
Biosolvent			
	0.0141	0.0116	17.73
	0.0186	0.0112	39.78
	0.0149	0.0094	36.91
Free & Clear All Purpose			
	0.0609	0.0424	30.38
	0.0420	0.0161	61.67
	0.0378	0.0202	46.56
#10			
	0.0318	0.0243	23.58
	0.0436	0.0276	36.70
	0.0583	0.0442	24.19

Summary:	<b>Substrates:</b>	Copper				
	<b>Contaminants:</b>	Inks				
	<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
	Kyzen Corporation	Industrial Floor Cleaner 11	10	35.07	<input type="checkbox"/>	
	Vertec BioSolvents	VertecBio Gold Unscented Part Cleaner	10	31.48	<input type="checkbox"/>	
	Seventh Generation	Free & Clear All Purpose	10	46.20	<input type="checkbox"/>	
	Sky Products Company Inc	Cleaner #10	10	28.16	<input type="checkbox"/>	

Conclusion: No product removed over 85% of the graffiti from copper using immersion cleaning.