



Toxics Use Reduction Institute's Cleaning Lab
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TURI SURFACE SOLUTIONS LABORATORY EVALUATION SUMMARY

SCL #: 2019-26-441-1-1

Date Run: 4/5/2019

Experimenters: LG, JR, SA, TK, AW

Client Type: Janitorial

Project Number:

Substrates: Stainless Steel, Plastic, Porcelain, Granite

Part Type: Coupons

Contaminants: DCC 17

Cleaning Methods: Manual - SLW

Analytical Methods: Gravimetric, Visual

Purpose: Evaluate the ability of the three cleaners (E-Mop, Lysol Power Bath Cleaner, Scrubbing Bubbles) on air dried DCC 17 soil on four substrates (stainless steel, plastic, porcelain, granite) using SLW.

Experimental Procedure: Three cleaners were compared, E-Mop, Lysol Power Bath Cleaner and Scrubbing Bubbles. The substrates cleaned were stainless steel, plastic, porcelain and granite. The contaminant used was DCC 17 soil. The DCC 17 soil was made using 33 wt.% vegetable shortening, 33 wt.% lard, 33 wt.% vegetable oil, and 1 wt.% carbon lampblack. The soil was kept heated between 50-55 °C. The coupons' initial weights were taken and then about 0.5000 g of DCC 17 soil was applied to each coupon. The coupons were set to dry at room temperature for at least 24 hours. Once dried, the contaminated weights were taken, three coupons of each substrate were placed in the SLW unit and a KC Wypal reinforced paper towel was attached to the cleaning sled and treated with two sprays of cleaning solution. Each coupon was sprayed twice with the same cleaning solution. The cleaning unit was run for 20 cycles (equivalent of 30 seconds of cleaning). At the end of the cleaning cycle, the coupons were wiped once with a dry paper towel. Coupons dried overnight and final weights were recorded. Efficiencies were calculated and recorded.

Chemistries Evaluated: E-Mop (One scoop of salt was added to water to make E-Mop cleaner (1 scoop of salt = 3.0516 g), the resulting concentration was 310 ppm), Lysol Power Bath Cleaner (RTU), Scrubbing Bubbles (RTU)

Results:

E-Mop

Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% Average
Stainless Steel				
	0.5003	0.0569	88.62	89.59
	0.5123	0.0583	88.61	
	0.5055	0.0428	91.53	
Plastic				
	0.5047	0.0131	97.40	97.10
	0.5088	0.0223	95.62	
	0.5554	0.0096	98.27	
Porcelain				
	0.4914	0.0236	95.20	95.95
	0.5645	0.0228	95.96	
	0.5365	0.0177	96.70	
Granite				
	0.5726	0.0012	99.79	98.72
	0.5809	0.0138	97.62	
	0.5630	0.0071	98.74	

Lysol Power Bath Cleaner

Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% Average
Stainless Steel				
	0.5479	0.0533	90.27	94.73
	0.6386	0.0162	97.46	

	0.5751	0.0204	96.45	
Plastic				
	0.5738	0.0155	97.30	94.66
	0.5814	0.0523	91.00	
	0.4986	0.0215	95.69	
Porcelain				
	0.5103	0.0316	93.81	92.24
	0.5069	0.0362	92.86	
	0.4873	0.0484	90.07	
Granite				
	0.5262	0.0186	96.47	97.20
	0.4924	0.0144	97.08	
	0.6097	0.0118	98.06	

Scrubbing Bubbles

Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% Average
Stainless Steel				
	0.5640	0.0480	91.49	90.18
	0.5331	0.0573	89.25	
	0.5850	0.0596	89.81	
Plastic				
	0.6284	0.0497	92.09	90.89
	0.5403	0.0610	88.71	
	0.5033	0.0409	91.87	
Porcelain				
	0.4860	0.0286	94.12	93.32
	0.5319	0.0299	94.38	
	0.5301	0.0453	91.45	
Granite				
	0.5376	0.0360	93.30	93.32
	0.5391	0.0247	95.42	
	0.5402	0.0473	91.24	

Summary

Substrates: Stainless Steel, Plastic, Porcelain

Contaminants: DCC 17

Result of the effectiveness of two cleaner by using gravimetric analysis:

Company Name	Product Name	Conc.	% Removal
	E-Mop		95.34
	Lysol Power Bath Cleaner	100%	94.71
	Scrubbing Bubbles	100 %	91.93

Conclusion:

E-mop cleaner had the highest overall removal percentage for every substrate with a 95.34%, followed by the Lysol Power Bath Cleaner having the second highest overall removal percentage for every substrate with an 94.71% overall removal of contaminant. The least effective cleaner for overall removal of contaminant was Scrubbing Bubbles with an overall removal percentage of 91.93%.