

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010  
 DateRun: 06/04/2010  
 Experimenters: Jason Marshall, Timothy Weil  
 ClientType: Cleaner Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Ceramics, Plastic, Steel  
 PartType: Coupon  
 Contaminants: Hucker's Soil  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric  
 Purpose: To evaluate all purpose cleaning formulations at a lower dilution

**Experimental Procedure:** The supplied ingredients were mixed according to the supplied procedures, substituting new surfactant into process. The 3:1 concentrate was diluted 1 part solvent solution to 32 parts water. The cleaning products were diluted with room temperature DI water.

Preweighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) using a handheld swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds).

At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

**Results:** All six replacement surfactant mixtures were effective at removing the Hucker's soil from the three surfaces using manual wiping. Each removed more the current formulation. Each diluted version except H3HCA was less effective than the RTU products tested previously. The control product removed 84%. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Nutrisol w/ Calsoft L40 Ceramic	0.5136	0.3221	37.28
	0.3480	0.0238	93.16
	0.1913	0.0267	86.04
Nutrisol w/ Calsoft L40 Steel	0.1518	0.0053	96.51
	0.0724	0.0095	86.88
	0.0884	0.0079	91.06
Nutrisol w/ Calsoft L40 Plastic	0.1131	0.0072	93.63
	0.0616	0.0050	91.88
	0.1097	0.0022	97.99
Nutrisol w/ Calsoft AOS40 Ceramic	0.1214	0.0145	88.06
	0.1488	0.0142	90.46
	0.2739	0.0332	87.88
Nutrisol w/ Calsoft AOS40 Steel	0.1243	0.0055	95.58
	0.0945	0.0158	83.28

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	0.1076	0.0024	97.77
Nutrisol w/ Calsoft AOS40 Plastic			
	0.0841	0.0045	94.65
	0.0921	0.0065	92.94
	0.0596	0.0080	86.58
Nutrisol w/ Mirataine H2CA Ceramic			
	0.2278	0.0252	88.94
	0.3399	0.0373	89.03
	0.2117	0.0321	84.84
Nutrisol w/ Mirataine H2CA Steel			
	0.0853	0.0006	99.30
	0.0702	0.0040	94.30
	0.1472	0.0110	92.53
Nutrisol w/ Mirataine H2CA Plastic			
	0.0829	0.0033	96.02
	0.1373	0.0093	93.23
	0.1064	0.0171	83.93
Nutrisol w/ SugaFax D10 Ceramic			
	0.3334	0.0255	92.35
	0.2459	0.0220	91.05
	0.2616	0.0271	89.64
Nutrisol w/ SugaFax D10 Steel			
	0.1830	0.0149	87.61
	0.2107	0.0261	78.28
	0.0884	0.0192	88.78
Nutrisol w/ SugaFax D10 Plastic			
	0.0882	0.0099	89.20
	0.1075	0.0058	86.12
	0.0833	0.0090	83.21
Nutrisol w/ SugaNate 160 Ceramic			
	0.1830	0.0254	87.99
	0.1727	0.0290	82.19
	0.2356	0.0283	86.59
Nutrisol w/ SugaNate 160 Steel			
	0.0994	0.0177	79.50
	0.1402	0.0188	79.60
	0.1434	0.0294	84.66
Nutrisol w/ SugaNate 160 Plastic			
	0.0902	0.0184	86.25
	0.1232	0.0189	94.66
	0.1331	0.0183	94.95

Summary:

<b>Substrates:</b>	Ceramics, Plastic, Steel				
<b>Contaminants:</b>	Hucker's Soil				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Next-Gen Supply Group	3R All Purpose Cleaner	2	93.09	<input checked="" type="checkbox"/>	

Conclusion:

## **CLEANING LABORATORY EVALUATION SUMMARY**

All possible replacement surfactant mixtures removed over 85% of the Hucker's soil, compared well with the conventional product and outperformed the supplied control product.