CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	06/16/2014
Experimenters:	Jonathan Oljey, George Liang, Russell Curtis
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #2
Substrates:	Skin
PartType:	Coupon
Contaminants:	Dirt
Cleaning Methods:	Manual Wipe
Analytical Methods:	Tactile, Visual
Purpose:	To evaluate supplied products for performance following Green Seal GS 41 hand cleaning standard.

Experimental Procedure:

The testing conducted followed Green Seal's GS 41 standard, Performance testing Hand Cleaners and Hand Soaps Used for Industrial and Institutional Purposes. The product specific performance requirements stated:
Using a fixed, repeatable procedure, the product shall demonstrate efficacy against a nationally recognized conventional product showing equivalent or better performance. The testing protocol shall include, at a minimum: cleaning ability, lathering/rinsing, and skin condition after use. A standard soil shall be used and conclusions shall be derived from at least six separate samples. All results, a summary of conclusions and a description of how panelists are chosen shall be submitted.

To that end, the TURI Lab established a hand cleaning protocol. The TURI Lab Testing Procedure for Hand Soap Testing followed the procedures listed: Conduct preliminary review of hand condition of subject to characterize skin condition as moist, normal, dry or very dry prior to cleaning. The soil used consisted of 5 grams of Synthetic carpet soil AATCC Test Method 122, 20 ml tap water. The water and soil were mixed together to make a paste. A quarter size amount of soil was applied to a subject's hand. Both hands were then rubbed together to distribute soil to both hands.

Using tap water hands were wetted and apply one to two pumps of hand soap were applied. Hands were rubbed together with soap and water for 20 seconds followed by rinsing hands in tap water for 20 seconds. Final step was to wipe or blot hands dry for 20 seconds. During and after cleaning, observations were made for cleaning, lathering/rinsing and skin condition. Cleaning and lathering observations were made once and the skin condition was recorded at 1, 5, 20 and 60 minutes. Observations were ranked using the following guidelines:
Observed cleanliness
Rank Cleanliness
1 No signs of soil
2 Only in fine lines of hand or Intermittent spots but not in fine lines
3 Intermittent spots and in fine lines
4 Multiple spots (connected spots)
5 Continually covered
Observe lathering/rinsing
Rank Lathering/Rinsing
1 Lots of lathering – easy rinsing
2 Some lathering – easy rinsing
3 Some lathering – hard rinsing
4 Little lathering – easy rinsing/ No lathering – easy rinsing
5 No lathering – hard rinsing
Observe skin condition after clean/rinse/dry at 1 minute, 5 minutes, 20 minutes and 60 minutes.
Rank Skin Condition Observation
1 Smooth and soft
2 Some dryness
3 Dry - Hands turning white
4 Skin stiffening
5 Very dry - Cracking of skin
Photographs of each subject’s hands before soil, after soiling and after cleaning were taken to document cleaning results. Subjects were selected on the basis of skin condition. The goal was to select skin types that were normal to dry so that the effect of the cleaners could be judged on at least two skin types.

Chemistries Evaluated: Lucky Super Soft Hand Soap; White Pearl Hand Soap; Foaming Hand Soap; Water;

Results:

Visual Test for Soft Soap Hand Soap Test

Observation	Tester 1	2	3	4	5	6	Avg	
Cleanliness 1-5	4	2	5	3	5	4	3.83	
	2	2	5	2	4	4	3.17	

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Lathering/Rinsing 1-5								
Skin Condition								
	1 Min	1	1	2	1	3	2	1.67
	2 Min	1	1	2	1	2	2	1.5
	20 Min	1	2	2	2	2	2	1.83
	60 Min	1	2	2	2	2	2	1.83

The Soft Soap Hand Soap resulted in a relatively consistent spread of results across the board for each tester. Some of the respondents noted an increase in dryness over the waiting time. Overall, the soap was not effective in cleaning the dirt off of our test subjects, resulting in an average cleanliness of 3.6.

Visual Test for Green Works Hand Soap Test

Observation	Tester 1	2	3	4	5	6	Avg	
Cleanliness 1-5	3	5	3	4	3	3	3.5	
Lathering/Rinsing 1-5	2	2	2	3	4	4	2.83	
Skin Condition								
	1 Min	1	1	2	1	1	1	1.17
	2 Min	2	1	2	1	1	1	1.33
	20 Min	1	1	3	2	1	1	1.5
	60 Min	1	1	5	2	1	1	1.83

The Greenworks Hand Soap had a generally consistent level of relatively low cleaning across the board. It is important to note that one of the testers had a bad reaction to the soap. A table has been added below to represent this by omitting the questionable results, which show a relatively high level of smoothness over a long period of time.

Visual Test for Green Works Hand Soap Test

Observation	Tester 1	2	4	5	6	Avg	
Cleanliness 1-5	3	5	4	3	3	3.6	
Lathering/Rinsing 1-5	2	2	3	4	4	3	
Skin Condition							
	1 Min	1	1	1	1	1	1
	2 Min	2	1	1	1	1	1.2
	20 Min	1	1	2	1	1	1.2
	60 Min	1	1	2	1	1	1.2

Visual Test for 7th Generation Hand Soap Test

Observation	Tester 1	2	3	4	5	6	Avg	
Cleanliness 1-5	4	3	3	3	3	2	3	
Lathering/Rinsing 1-5	1	4	1	2	2	4	2.33	
Skin Condition								
	1 Min	1	1	1	1	3	1	1.33
	2 Min	1	2	1	1	2	1	1.33
	20 Min	1	3	1	2	2	1	1.67
	60 Min	1	2	2	1	2	1	1.5

Summary:

Substrates:	Skin				
Contaminants:	Dirt				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Colgate-Palmolive Company	Softsoap soothing aloe vera	100	0.00	☐	C 3.83; L 3.17; S 1.83
Fisher Scientific	Absolute Ethanol	0	0.00	☐	
Clorox Company	Green Works Hand Soap	100	0.00	☑	C 3.5; L 2.83; S 1.83
Seventh Generation	Seventh Generation Hand Soap	100	0.00	☑	C 3; L 2.33; S1.5

Conclusion:

Green Works hand soap and Soft Soap hand soap both resulted in a relatively low level of cleaning compared to the 7th Generation hand soap. Greenworks resulted in the smoothest hands in general but did cause a reaction to one of the test subjects.