CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	06/19/2014
Experimenters:	Junhee Cho, Loc Nguyen
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #6
Substrates:	Ceramics
PartType:	Coupon
Contaminants:	Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual
Purpose:	To measure the foam stability of light-duty hand dishwashing detergent products in the presence of artificially soiled plates

Experimental Procedure:

Soiled dinner plates are washed by hand in solutions of hand dishwashing detergents under standardized conditions until an end point of near disappearance of the foam is reached, after which the number of plates washed is compared to the number of plates washed using a standard product. The guide, as now constituted, is not suitable for ranking of hand dishwashing products, since no basis is available at this time for correlation of the foam stability of these products using any particular food soil or combination of soils with consumers' ranking of performance. Materials used included, plain white glazed dinner plates in sound condition 8 to 9 in. in diameter, with 6 1⁄4 to 6 1⁄2 in.) indented bottom; plastic dishpan (conventional) with bottom diameter = 11 in., top diameter = 14 1⁄2 in., depth = 5 1⁄2 in; sponge (any conventional brand); a reservoir of 4-L capacity, that can be readily loaded with test water and that can deliver its contents through a 3⁄8-in. (inside diameter) drainage tip with an open-shut style to permit full flow immediately upon opening.

The soil mixture used was based on the ASTM soil B: Flour - 50 %; Shortening - 48 %; Olive oil - 2 %The shortening and the olive oil were warmed to 100°F. Then the flour was slowly added while mixing with a spatula and warming to 120°F. The temperature was held at 120+/-3°F) while soiling dishes. In order to prevent soil from melting off plates, the wash temperature was not allowed to exceed 117°F. Prewashed plates were coated with 6 grams of soil using a spatula and then spread over the surface of the plate using gloved finger. Soiled plates were then stacked in convenient sized piles (20 to 25 plates). The top plate of each pile was inverted to prevent drying out of soil. After soiling the last plate of each stack, the residual soil on the finger is removed by wiping on the sides of the stacked, soiled plates. Soiled plates were washed the same day as soiling.

The product concentration used was specified by the client. The standard temperature was 117°F. Four liters of test water at desired hardness and temperature was placed in the reservoir. One hundred mL of test water from the reservoir was removed and divided into four equal portions. The concentrate of the cleaning product was added to one flask with 25 ml of water and added to the wash pan. The flask was rinsed with 25 mL of test water three times, pouring each rinse into the wash pan. Then the remaining 3.9 L of test water in the reservoir was added to the wash pan. The reservoir delivery tip was situated 24 in. above the bottom of the dish pan so that it delivers into the center of the pan.

The sponge was placed in the wash water and two squirts of the product was applied. The first dish was washed beginning at 20 seconds after the soap addition was completed. One dish was washed at a time, both front and back, using a rotating motion with the sponge while keeping the dish half submerged in an angular position with the bottom of the dishpan. A soiled dish was washed every 30 s and the process was continued until an end point was reached where just half the surface of the wash solution shows a thin layer of foam. Dishes washed can be rated at whole or half dishes, depending on the operator's measurement of residual foam. The process was repeated three times.

Chemistries Evaluated: Vi-Jon dishwashing cleaner, 7th Generation dish washing cleaner

Results:

Product	Start Temp	End Temp	# of Plates	Tester
Vi-Jon	41	38	2	1
Vi-Jon	39	36	2	1
Vi-Jon	39	37	1	1
Vi-Jon	40	37	2	2
Vi-Jon	41	39	2	2
Vi-Jon	40	37	2	2
Average	40	37.3	1.83	
Product	Start Temp	EndTemp	# of Plates	Tester
7th Gen	38	36	4	1

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7th Gen	40	38	4	1
7th Gen	40	37	4	1
7th Gen	40	38	3	2
7th Gen	41	37	4	2
7th Gen	41	38	5	2
Average	40	37.3	4	

Summary:

Substrates:	Ceramics				
Contaminants:	Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Vi-Jon	Vi-Jon dishwashing cleaner	0.1	0.00	☐	1.8 plates
Seventh Generation	Free & Clear Dish Liquid	0.1	0.00	☑	4 plates

Conclusion: The foam stability supplied by 7th generation was vastly superior to the foam stability provided by Vi-Jon, resulting in more than double the number of dishes being cleaned on average.