CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	10/21/2014
Experimenters:	Jason Marshall, Loc Nguyen, George Liang, Russell Curtis, Nicholas Landberg
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Liquid
PartType:	Coupon
Contaminants:	Odor
Cleaning Methods:	Low Pressure Spray
Analytical Methods:	Smell
Purpose:	To evaluate supplied products for odor elimination
Experimental Procedure:	Glass bottles (250 ml) were filled with 1ml of milk each and left to spoil over a 3-day period. A panel of three then examined the odors to determine baseline values using 6 bottles, including a control. The bottles were then treated with the cleaners at the recommended dilutions. Each panelist was asked to describe odor and rank the level of intensity of the malodor 1 being the worst smell and 5 being the best. After the panelists observed the initial odors, bottles were recapped and observations were recorded. Bottles were reopened and more cleaners were applied. Each bottle was subjected to additional rounds of treatment and each panelist was used to assess malodor levels. When the intensity of malodor level has reached a rating of 4 or higher; any additional sprays in the contaminated bottles are unnecessary as the malodor level is no longer noticeable. On the 4th day of the test; an additional test was conducted to see if the contaminated bottles have reached back to its original malodor level. Only contaminated bottles that indicated an increase in malodor level of a rating below a 4 was retested with two more sprays to see if the cleaner can effectively remove the increased overnight malodor level. ChemistriesEvaluated: Diversey-Good Sense, Biokleen Bac-out, Odoban, Febreeze;
Results:	Each of the three panelists observed decreases in the malodor. The non-treated sample was nearly unchanged from the start of the testing.

Cleaner	Tester #	# Of Sprays	Bottle 1	Bottle 2	Bottle 3	Average
Good Sense Odor	1	0	1	1	1	1.0
		2	3.2	3.5	3.4	3.4
		4	3.5	3.7	3.5	3.6
		6	3.1	3.8	3.5	3.5
		8	4	4	4	4.0
	2	0	1	1	1	1.0
		2	3	3.5	2.5	3.0
		4	3.5	3.5	3	3.3
		6	3.5	4	3	3.5
		8	4	4.5	3.5	4.0
	3	0	1	1	1	1.0
		2	2	3	3	2.7
		4	3.5	4	3.5	3.7
		6	4	4	3.8	3.9
		8	4	4	4.2	4.1
Bac-Stain & Odor	1	0	1	1	1	1.0
		2	2	1.5	1.5	1.7
		4	2	2	2.6	2.2
		6	3.5	3	3.7	3.4
		8	4	4	3.9	4.0
	2	0	1	1	1	1.0
		2	2	2	2.5	2.2
		4	2	2.5	2.5	2.3
		6	3.5	4	3.5	3.7
		8	3.5	4	3.5	3.7
	3	0	1	1	1	1.0

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		2	2.5	2	2	2.2
		4	2.5	2.5	2.5	2.5
		6	2.5	3	3	2.8
		8	3.8	3.9	3.9	3.9
OdoBan	1	0	1	1	1	1.0
		2	3	2	2.5	2.5
		4	3.2	3.4	3.8	3.5
		6	3.7	3.7	4	3.8
		8	N/A	N/A	N/A	
	2	0	1	1	1	1.0
		2	3	3	3	3.0
		4	4	3.2	3.5	3.6
		6	4	3.5	4.5	4.0
		8	N/A	N/A	N/A	
	3	0	1	1	1	1.0
		2	2.5	3	3	2.8
		4	3.5	4	4	3.8
		6	5	4	5	4.7
		8	N/A	N/A	N/A	
Febreeze	1	0	1	1	1	1.0
		2	2.6	3	2.9	2.8
		4	3	3.5	3.5	3.3
		6	3.2	3.5	3.5	3.4
		8	N/A	N/A	N/A	
	2	0	1	1	1	1.0
		2	1.5	3	2	2.2
		4	2.5	3	2.5	2.7
		6	4	4	3.5	3.8
		8	N/A	N/A	N/A	
	3	0	1	1	1	1.0
		2	2.5	2	2.5	2.3
		4	3	3	3	3.0
		6	3	3	3	3.0
		8	N/A	N/A	N/A	
4th day						
Cleaner	Tester #	# Of Sprays	Bottle 1	Bottle 2	Bottle 3	Average
Good Sense Odor	1	0	2	3	2	2.3
		2	2.8	4	2.9	3.2
	2	0	1.5	2	1	1.5
		2	3	4	3.2	3.4
	3	0	4	3.5	1	2.8
		2	3	3.9	2.5	3.1
Bac-Stain & Odor	1	0	3.5	2.8	3.5	3.3
		2	2.8	3	3.5	3.1
	2	0	2.5	3	3	2.8
		2	2.8	3.5	3.2	3.2
	3	0	3	3	3	3.0
		2	2.5	2.5	3	2.7
Odoban	1	0	2.5	2.8	2.6	2.6
		2	2.3	3	2.5	2.6
	2	0	2.5	2.5	3	2.7
		2	2.5	3.5	2.8	2.9
	3	0	2	2	2	2.0
		2	3.2	3	3.5	3.2
Febreeze	1	0	2	2	2.7	2.2
		2	2.5	2.8	2.7	2.7
	2	0	2	2.5	2.5	2.3

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		2	2.5	2	2.3	2.3
	3	0	2	2	2	2.0
		2	2.6	2	2.8	2.5

Summary

	Control	Good	Sense Bac-Stain	Odoban	Febreeze
Original(day 3) 1	1	1	1	1	
2 Spray	1	3	2	2.8	2.4
4 Spray	1	3.5	2.3	3.6	3
6 Spray	1	3.6	3.3	4.2	3.4
8 Spray	1	4	3.8	N/A	N/A

Summary:

Substrates:	Liquid				
Contaminants:	Odor				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Diversey Corporation	Diversey Good Sense Odor Eliminator	100	0.00	☐	
Biokleen	Biokleen Bac-Out Stain & Odor Eliminator	100	0.00	☐	
Clean Control Corporation	Odoban	100	0.00	☑	
Procter & Gamble	Febreze Free Nature	100	0.00	☑	

Conclusion:

Based on our observed results Odoban works the best as it required the least number of sprays for the milk odor to smell better. After 8 sprays Good Sense and Bac-Stain was effective at removing the odor. Febreeze was not able to remove the smell of odor even after the 8th spray. On the 4th day, Bac-Stain & Odor was most consistent in malodor elimination. The ranking was in the 3 range while other cleaners were under the 3 range. Odoban and Good Sense were able to reach the rank of 3 after 2 additional sprays.