CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	12/09/2014
Experimenters:	
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Liquid
PartType:	Coupon
Contaminants:	Odor
Cleaning Methods:	Low Pressure Spray
Analytical Methods:	Smell
Purpose:	Run performance testing for odor control
Experimental Procedure:	Clean 250 ml glass bottles were filled with six ml of whole milk. The bottles were capped and stored at room temperature for three days. At the end of the three days, the bottles were opened and observed for signs of spoiling odor. Cleaning products were used at the recommended concentrations. Three bottles were opened and treated with two sprays of one of the supplied cleaning products. Bottles were capped and swirled to mix the cleaner with the milk. A panel of three was initialized to the various odors. An untreated bottle, a bottle with spoiled milk, a bottle with Product 1 solution, a bottle with Product 2 and a bottle with Product 3 were presented to the panelist. The exposure was to set a bench mark for each possible odor contributor. The treated bottles were then presented uncapped to one member of the odor panel. The panelist was asked to describe odor and rank the level of intensity of the malodor. Each panelist was subjected to three bottles for each product/milk mixture plus a selection of the initial odor bottles in random odor. After the panelists observed the odors, bottles were recapped and allowed to set overnight. Bottles were reopened and assessed for odors. Each bottle was subjected to a second round of treatment and each panelist rated the malodor stench. The rating was according to the scale set being 1 as worse and 5 being the best. Each bottle was treated with 2 sprays (1 cycle of spray) of the selected cleaner until it has reached the point in which the panelist has evaluated the malodor level to be 4 or above. The treatment of the contaminated bottles was stopped at a maximum of 6 sprays (3 cycles of sprays) as this is considered ineffective at removing the malodor level from the bottle. Chemistries Evaluated: Banner Natural, Formula 409, Water
Results:	Each of the three panelists observed high level of malodor still remaining in the contaminant after the soil had been applied with formula 409 and water. Even after 3 cycles of sprays; the water treated samples were nearly unchanged from the untreated spoiled milk benchmark bottles. After 1 cycle of spray with Banner Natural, the soiled milk scent was masked by the scent of the cleaner. Formula 409 still had a hint of soiled milk lingering after 3 cycles of sprays was applied to the contaminant.

Control:	1	1	1	
Cleaner	Banner Natural	Original		Avg.
Bottle 1	3.5	3.5	2.5	3.2
Bottle 2	3	2	2	2.3
Bottle 3	3	3	2	2.7
				% Average :2.7
Cleaner	Formula 409	Original		
Bottle 1	2	2	2.5	2.2
Bottle 2	2	1	1.5	1.5
Bottle 3	1	2	1.5	1.5
				% Average: 1.7
Cleaner	Water	Original		
Bottle 1	1.5	2.5	2.5	2.2
Bottle 2	2.5	2	2	2.2
Bottle 3	2	2	2	2.0
				% Average: 2.1

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Cleaner	Banner Natural	Sprays Total :2		
				Average
Bottle 1	4	4.5	4	4.2
Bottle 2	4	4.5	4	4.2
Bottle 3	5	5	4.5	4.8
				% Average: 4.4
Cleaner	Formula 409	Sprays Total :2		
				Average
Bottle 1	2	2	2.5	2.2
Bottle 2	3	2.5	2	2.5
Bottle 3	3.5	3	2.5	3
				% Average: 2.6
		Sprays Total :4		Average
Bottle 1	2	2.5	2.5	2.3
Bottle 2	3	2.5	3	2.8
Bottle 3	3.5	3	3	3.2
				% Average: 2.8
		Sprays Total :6		Average
Bottle 1	2.5	3	3.5	3
Bottle 2	3.5	3.5	3	3.3
Bottle 3	3.5	3.5	3.5	3.5
				% Average: 3.3
Cleaner	Water	Sprays Total :2		
				Average
Bottle 1	1.5	2.5	3	2.3
Bottle 2	2.5	2	2	2.2
Bottle 3	2	2.5	2.5	2.3
				% Average: 2.3
		Sprays Total :4		Average
Bottle 1	2	2.5	3	2.5
Bottle 2	2.5	2	2	2.2
Bottle 3	2	2.5	2.5	2.3
				% Average: 2.3
		Sprays Total :6		Average
Bottle 1	2	2.5	3	2.5
Bottle 2	2.5	2	2	2.2
Bottle 3	2	2.5	2.5	2.3
				% Average: 2.3

Summary:

Substrates:	Liquid
Contaminants:	Odor

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Fisher Scientific	Absolute Ethanol	0	0.00	☐	
Nattura	Banner Natural	100	0.00	☑	Effectively removed the malodor
Clorox Company	Formula 409 All Purpose Cleaner	100	0.00	☐	Ineffective, but has noted a small reduction in malodor

Conclusion:

Banner Natural worked the best at masking the smell of spoiled milk. It was the only effective product at removing the smell at 1 cycle of spray. Formula 409 and Water were not effective at removing the smell of spoiled milk. However Formula 409 is still more effective at removing the smell than water. In the 3rd cycle

of Formula 409 the Malodor level has been noted to be reduced. But for Water after 3 cycles of sprays, the level of malodor remained consistent as it was originally.