CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2017
DateRun:	05/29/2017
Experimenters:	George Liang, Carla De La Cruz, Vinh Tran, James Keats, Kevin Smith
ClientType:	
ProjectNumber:	Project #1
Substrates:	Liquid
PartType:	Coupon
Contaminants:	Odor, Food
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Smell
Purpose:	To evaluate supplied product for malodor milk odor elimination.

Experimental Procedure:

The following experimental procedure follows TURI's cleaning standard for milk malodor elimination.

Soiling Process:

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. Five panelist were used to evaluate the malodor increase from the overnight sit.

Cleaning Process:

Cleaning products were used at the recommended concentrations. The following cleaning process will describe the standard operating procedure for one cleaning agent in eliminating malodor. Three bottles were opened and treated with two sprays of the supplied cleaning product as one treatment cycle. Bottles were capped and swirled to mix the cleaning agent with the milk. Each bottle was re-opened and assessed for its malodor after each treatment cycle with its respective cleaning agent. The three bottles were treated for a total of three treatment cycles and left to sit overnight. After the overnight sit, the same five panelists were used to evaluate if there was an increase in malodor from the milk bottles. Thereafter, the three bottles were treated with one cycle of the respective cleaning agent.

Efficacy Rating Process:

The following scale is used to assess the malodor of the spoiled milk:

1 = no sign of malodor; 5 = high malodor level

Results:

The sampled cleaner: SWR One was observed to be less effective than the comparative cleaner: Suma Break-Up HD Degreaser. After the third treatment cycle of the spoiled milk bottles with the respective cleaning agents; the bottles treated with the sampled cleaners had a slight increase in malodor than its original malodor level. The original malodor was observed to be 3.1; however, after the 3rd treatment cycle, the average malodor level of the bottles treated with SWR One was 4.0. Whereas, the bottles treated with the comparative cleaner had a slight decrease in malodor level after the 3rd treatment cycle; with an original untreated bottle malodor level of 3.4 and 2.3 after treating it with 3 cycles.

From the overnight sit, the bottles treated with Suma Break-Up HD Degreaser had signs of malodor increase from 2.3 to 3.4. However, the overnight malodor level increase was eliminated after one treatment cycle using the comparative cleaner. Whereas, bottles treated with the sampled cleaner: SWR One did not show an increase in malodor level from the overnight sit. However, after treating the bottles with one cycle of the sampled cleaner, the malodor level did not change.

Table pertaining to the malodor assessment from the five panelists.

Cleaner	SWR One	Original				Average (%)	Overall Average (%)
Bottle 1	2.0	1.5	2.0	3.0	2.0	2.1	3.1
Bottle 2	4.0	5.0	4.0	4.5	4.0	4.3	
Bottle 3	3.0	3.0	2.0	4.5	2.0	2.9	
Cleaner	SWR One	Spray: 2				Average (%)	Overall Average (%)
Bottle 1	3.0	4.5	4.0	3.0	3.0	3.5	3.1
Bottle 2	3.0	4.0	3.5	3.5	2.0	3.2	

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Bottle 3	3.0	2.5	3.5	2.5	1.5	2.6	
Cleaner	SWR One	Spray: 4				Average (%)	Overall Average (%)
Bottle 1	3.0	2.5	4.5	3.5	2.5	3.3	3.7
Bottle 2	3.0	3.5	5.0	4.0	1.5	3.4	
Bottle 3	4.0	4.5	4.7	4.0	2.0	4.4	
Cleaner	SWR One	Spray: 6				Average (%)	Overall Average (%)
Bottle 1	4.0	5.0	5.0	4.5	2.0	4.1	4.0
Bottle 2	3.0	3.5	5.0	4.0	1.5	3.4	
Bottle 3	4.0	4.5	4.7	4.0	2.0	4.4	
Cleaner	Suma Breakup HD Degreaser	Original				Average (%)	Overall Average (%)
Bottle 1	3.0	3.0	3.0	3.5	2.5	3.0	3.4
Bottle 2	4.0	4.5	5.0	5.0	3.0	4.3	
Bottle 3	3.0	2.0	3.5	4.0	2.0	2.9	
Cleaner	Suma Breakup HD Degreaser	Spray: 2				Average (%)	Overall Average (%)
Bottle 1	3.0	3.0	3.0	3.0	1.5	2.7	2.9
Bottle 2	3.0	3.5	1.5	4.0	2.5	2.9	
Bottle 3	4.0	4.0	2.5	2.5	2.5	3.1	
Cleaner	Suma Breakup HD Degreaser	Spray: 4				Average (%)	Overall Average (%)
Bottle 1	3.0	4.0	3.0	2.0	1.5	3.3	3.0
Bottle 2	2.5	2.5	4.0	4.0	2.0	3.0	
Bottle 3	3.0	1.5	3.5	3.5	2.0	2.7	
Cleaner	Suma Breakup HD Degreaser	Spray: 6				Average (%)	Overall Average (%)
Bottle 1	3.0	3.0	2.5	3.0	2.0	2.7	2.3
Bottle 2	3.5	2.0	2.5	3.5	2.0	2.7	
Bottle 3	2.0	1.5	1.0	2.5	1.5	1.5	

Odor Results after the overnight sit: Table pertaining to the malodor assessment from the five panelists after letting the bottle sit overnight.

Cleaner	SWR One	After Overnight Original				Average (%)	Overall Average (%)
	4.0	5.0	4.0	4.0	2.5	3.9	3.5

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Bottle 1							
Bottle 2	2.5	2.5	4.0	4.5	2.0	3.0	
Bottle 3	3.0	4.0	4.0	4.5	1.5	3.7	
Cleaner	SWR One	After Overnight Spray: 2				Average (%)	Overall Average (%)
Bottle 1	4.0	5.0	4.0	4.0	2.5	3.9	3.4
Bottle 2	2.5	2.5	4.0	4.5	2.0	3.0	
Bottle 3	3.0	4.0	4.0	4.5	1.5	3.4	
Cleaner	Suma Breakup HD Degreaser	After Overnight Original				Average	Overall Average (%)
Bottle 1	3.0	4.0	4.0	5.0	3.0	3.8	3.4
Bottle 2	4.0	5.0	2.0	5.0	2.0	3.7	
Bottle 3	3.0	3.0	2.5	4.0	2.0	2.8	
Cleaner	Suma Breakup HD Degreaser	After Overnight Spray: 2				Average	Overall Average (%)
Bottle 1	3.0	4.0	3.0	4.5	3.5	3.6	2.9
Bottle 2	3.0	2.0	3.0	3.0	1.0	2.7	
Bottle 3	3.0	2.5	2.0	2.5	1.5	2.3	

Summary

Company Name	Product Name	Conc. (%)	Substrate	Efficacy after 24 hr wait time (%)	Filming	Streaking	Effective
SWR Corp.	SWR One	10	Glass	96.84	4	4.6	Yes
SWR Corp.	SWR One	10	Chrome Plated Aluminum	95.19	2.6	2.9	Yes
Diversey	Suma Break-Up HD Degreaser	5	Glass	95.04	3.7	5.5	Yes
Diversey	Suma Break-Up HD Degreaser	5	Chrome Plated Aluminum	95.04	2.9	3.3	Yes

Summary:

Substrates:	Liquid				
Contaminants:	Odor, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
SWR Corporation	SWR One	10	0.00	☐	
Diversey Corporation	Suma Break-Up HD Degreaser	5	0.00	☑	

Conclusion: In conclusion, the sampled cleaner: SWR One was not as effective as the comparative cleaner: Suma Break-Up HD Degreaser.