

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2015

DateRun: 06/30/2015

Experimenters: Loc Nguyen, George Liang, Russell Curtis

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: 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 of the untreated bottles. Then 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 best and 5 being the worse. Each bottle was treated with 2 sprays (1 cycle of spray). The treatment of the contaminated bottles was stopped at a maximum of 6 sprays (3 cycles of sprays). At the end of the 3rd cycle of treatment, a cleaning agent is considered to be effective if the bottle has reached a malodor level that is under a 2. The bottles were then left overnight to sit to assess if any malodor level would rise. If it did, another round of treatment was applied to see if it can get rid of the malodor.

Chemistries Evaluated: Febreze G1; Good Riddance

|          |          |            |           |                  |         |
|----------|----------|------------|-----------|------------------|---------|
| Results: | Cleaner  | Febreze G1 | Original  |                  | Average |
|          | Bottle 1 | 4.8        | 5         | 5                | 4.9     |
|          | Bottle 2 | 4.5        | 5         | 4.5              | 4.7     |
|          | Bottle 3 | 4.5        | 5         | 4.5              | 4.7     |
|          |          |            |           | Overall Average: | 4.8     |
|          | Cleaner  | Febreze G1 | Sprays: 2 |                  | Average |
|          | Bottle 1 | 2          | 1         | 1.5              | 1.5     |
|          | Bottle 2 | 1.5        | 1.5       | 1                | 1.3     |
|          | Bottle 3 | 1.5        | 1.5       | 1.2              | 1.4     |
|          |          |            |           | Overall Average: | 1.4     |
|          | Cleaner  | Febreze G1 | Sprays: 4 |                  | Average |
|          | Bottle 1 | 2          | 1.5       | 1.2              | 1.6     |
|          | Bottle 2 | 1.5        | 1         | 1.2              | 1.2     |
|          | Bottle 3 | 1          | 1         | 1                | 1       |

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|------------------|------------------|--------------|---------------------|---------|
|                  |                  |              | Overall<br>Average: | 1.3     |
| Cleaner          | Febreze<br>G1    | Sprays:<br>6 |                     | Average |
| Bottle<br>1      | 2                | 1            | 1                   | 1.3     |
| Bottle<br>2      | 1                | 1            | 1.2                 | 1.1     |
| Bottle<br>3      | 1                | 1            | 1                   | 1       |
|                  |                  |              | Overall<br>Average: | 1.1     |
| Cleaner          | Good<br>Riddance | Original     |                     | Average |
| Bottle<br>1      | 4.7              | 5            | 4.5                 | 4.7     |
| Bottle<br>2      | 4.5              | 5            | 4.8                 | 4.8     |
| Bottle<br>3      | 5                | 5            | 4.7                 | 4.9     |
|                  |                  |              | Overall<br>Average: | 4.8     |
|                  |                  |              |                     |         |
| Cleaner          | Good<br>Riddance | Sprays:<br>2 |                     | Average |
| Bottle<br>1      | 4                | 4.8          | 2                   | 3.6     |
| Bottle<br>2      | 2.5              | 3            | 2                   | 2.5     |
| Bottle<br>3      | 3                | 2            | 2                   | 2.3     |
|                  |                  |              | Overall<br>Average: | 2.8     |
| Cleaner          | Good<br>Riddance | Sprays:<br>4 |                     | Average |
| Bottle<br>1      | 2                | 2            | 2.5                 | 2.2     |
| Bottle<br>2      | 2                | 2            | 1                   | 1.7     |
| Bottle<br>3      | 1.5              | 1.2          | 1.2                 | 1.3     |
|                  |                  |              | Overall<br>Average: | 1.7     |
| Cleaner          | Good<br>Riddance | Sprays:<br>6 |                     | Average |
| Bottle<br>1      | 1                | 1.2          | 1.2                 | 1.1     |
| Bottle<br>2      | 1                | 1            | 1                   | 1       |
| Bottle<br>3      | 1                | 1            | 1                   | 1       |
|                  |                  |              | Overall<br>Average: | 1       |
| Summary Table    |                  |              |                     |         |
| Cleaner          | Sprays           | Average      |                     |         |
| Febreze<br>G1    | 6                | 1.1          |                     |         |
| Good<br>Riddance | 6                | 1            |                     |         |

Summary:

|                      |                      |               |                    |                   |                      |  |
|----------------------|----------------------|---------------|--------------------|-------------------|----------------------|--|
| <b>Substrates:</b>   | Liquid               |               |                    |                   |                      |  |
| <b>Contaminants:</b> | Odor                 |               |                    |                   |                      |  |
| <b>Company Name:</b> | <b>Product Name:</b> | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b> | <b>Observations:</b> |  |

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|                         |                            |     |  |                                     |  |
|-------------------------|----------------------------|-----|--|-------------------------------------|--|
| Procter & Gamble        | Febreze Free Nature        | 100 |  | <input checked="" type="checkbox"/> |  |
| Maxim Technologies Inc. | Good Riddance Odor control | 100 |  | <input checked="" type="checkbox"/> |  |

Conclusion:

Both cleaners showed effectiveness in removing the malodor produced by the milk; Good Riddance slightly outperformed the comparative product in removing odors in the short term, and comparable control over the long-term removal of the odor.