

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009  
 DateRun: 04/17/2009  
 Experimenters: Smith Gadd  
 ClientType: General  
 ProjectNumber: Project #1  
 Substrates: Stainless Steel  
 PartType: Coupon  
 Contaminants: Calcium/lime, Food  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric

Purpose: To evaluate potential alternatives for dairy equipment using manual cleaning.

Experimental Procedure: Five products were selected based on past testing results matching client supplied information. All products were used at full strength in 400 ml beakers and heated to 120 F on a hot plate.

Peweighed stainless coupons were coated with the whole sweet milk contaminant using a squeeze bulb. The contaminant covered coupons were put in an oven at 130F and dried for 15 minutes. Once dry, the coupons were weighed a second time to determine the amount of milk applied.

Three coupons were sprayed with cleaning products and then cleaned with manual wiping. Rinsing was not needed and coupons were air dried. Final weights were recorded and efficiencies were calculated for each coupon cleaned.

|          |                 |            |          |           |
|----------|-----------------|------------|----------|-----------|
| Results: | Cleaner         | Initial wt | Final wt | % Removed |
|          | LF 2100         | 1.2488     | 0.1054   | 91.56     |
|          |                 | 1.0350     | 0.0735   | 92.90     |
|          |                 | 1.9015     | 0.0758   | 96.01     |
|          | Amberclean L12  | 1.5568     | 0.0878   | 94.36     |
|          |                 | 1.1759     | 0.0337   | 97.13     |
|          |                 | 1.1170     | 0.0605   | 94.58     |
|          | Simple Green D  | 1.5266     | 0.0442   | 97.10     |
|          |                 | 0.9132     | 0.0163   | 98.22     |
|          |                 | 0.7400     | 0.0189   | 97.45     |
|          | Soysolv II Plus | 1.0213     | 0.2122   | 79.22     |
|          |                 | 1.4441     | 0.2962   | 79.49     |
|          |                 | 1.0613     | 0.2120   | 80.02     |
|          | DFC 5           | 1.5232     | 0.0065   | 99.57     |
|          |                 | 1.3616     | 0.0265   | 98.05     |
|          |                 | 1.3078     | 0.0102   | 99.22     |

|          |                                    |                               |               |                    |                                     |                      |
|----------|------------------------------------|-------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Summary: | <b>Substrates:</b>                 | Stainless Steel               |               |                    |                                     |                      |
|          | <b>Contaminants:</b>               | Calcium/lime, Food            |               |                    |                                     |                      |
|          | <b>Company Name:</b>               | <b>Product Name:</b>          | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
|          | International Products Corporation | LF 2100 (Liquid Foam Cleaner) | 100           | 93.49              | <input checked="" type="checkbox"/> |                      |
|          | Enviro-One                         | Multi Use Green Conc.         | 100           | 95.36              | <input checked="" type="checkbox"/> |                      |
|          | Simple Green                       | Simple Green D                | 100           | 97.59              | <input checked="" type="checkbox"/> |                      |
|          | Soysolv Industrial Products        | Soysolv II solvent Plus       | 100           | 79.58              | <input type="checkbox"/>            |                      |
|          | Cogent Environmental Solutions     | DFC 5                         | 100           | 98.95              | <input checked="" type="checkbox"/> |                      |

Conclusion: Four of the five removed over 90% of the sweet milk from the stainless steel coupons using manual wiping. The top performers will be tested on the equipment at the facility.