

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009
 DateRun: 08/03/2009
 Experimenters: Jason Marshall, Junhee Cho, Timothy Weil
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Greases, Oil, Food
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric, Visual
 Purpose: To evaluate supplied product for fryer grease cleaning.

Experimental Procedure: Prewieghed stainless steel coupons were coated with a mixture of used cooking oil and grease as prepared from the UML food services. Oil was taken from the fryer operation and applied to the stainless steel coupons using a hand held swab. Coupons sat over night to allow the oil/grease to cool/harden onto the surfaces (if possible). After sitting, a second weighing was performed to determine the amount of oil/grease that was added to each coupon. Three coupons were immersed into cleaning solutions at room temperature and cleaned for 5 minutes. At the end of the cleaning, coupons were rinsed, dried and weighed a final time. Efficiency was calculated for each coupon cleaned.

One product could only be used to clean the oil/grease coated coupons by using spray applications. This was due to the cleaning product being active for 30-40 seconds. The surface of the coupons cleaned with this product was sprayed at 30 second intervals during the 5 minutes of cleaning. Several spray deliveries were attempted to determine the optimum performance. The product was compared directly to water in each delivery option to rule out the cleaning performed via the spray cleaning action.

In addition to the gravimetric analysis, visual observations were made.

Results: The Sysco product removed nearly all of the grease within five minutes of immersion cleaning. Both the water and Activelon had limited removal of grease via immersion/spray combinations. The Non Caustic Fryer Cleaner removed just under 80% of the grease. The table below lists the amount of soil added, the amount remaining, the removal efficiency and observations made.

| Cleaner | Initial wt | Final wt | % Removed | Observations |
|---------------------------|------------|----------|-----------|---------------------------|
| Non Caustic Fryer Cleaner | 0.2015 | 0.0451 | 77.62 | slight film on coupon |
| | 0.1653 | 0.0453 | 72.60 | slight film on coupon |
| | 0.2638 | 0.0416 | 84.23 | slight film on coupon |
| Fryer & Grill Cleaner | 0.3099 | 0.0152 | 95.10 | minor water droplet |
| | 0.4896 | 0.0065 | 98.67 | |
| | 0.3856 | 0.0067 | 98.26 | |
| Activeion | 0.3406 | 0.0807 | 76.31 | residue below the surface |
| | 0.1714 | 0.1153 | 32.73 | residue below the surface |
| | 0.1421 | 0.0897 | 36.88 | residue below the surface |
| Water-immersion | 0.2472 | 0.1772 | 28.32 | |
| | 0.2159 | 0.0644 | 70.17 | |
| | 0.2267 | 0.2013 | 11.20 | |

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| Water-spray | 0.1280 | 0.0559 | 56.33 | residue below surface-droplets |
| | 0.2086 | 0.1066 | 48.90 | residue below surface-droplets |
| | 0.4335 | 0.1322 | 69.50 | residue below surface-droplets |

Summary:

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|----------------------------------|--------------------|---------------------------|--------|-------------|-------------------------------------|---------------|
| Substrates: | Stainless Steel | | | | | |
| Contaminants: | Greases, Oil, Food | | | | | |
| Company Name: | | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Alpha Chemical Services | | Non Caustic Fryer Cleaner | 3.1 | 78.15 | <input type="checkbox"/> | |
| Sysco Corporation | | Fryer & Grill Cleaner | 0.3 | 97.34 | <input checked="" type="checkbox"/> | |
| Activeion Cleaning Solutions LLC | | Activeion Pro | 100 | 48.64 | <input type="checkbox"/> | |
| Water | | Water | 100 | 36.56 | <input type="checkbox"/> | immersion |
| Water | | Water | 100 | 58.24 | <input type="checkbox"/> | spray |

Conclusion:

The supplied product removed under 85% of the grease following the basic testing procedure at room temperature. The traditional product removed more than 95% under the same conditions. A follow up test at an elevated temperature or increased concentration may improve the supplied cleaner's performance.