# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 08/20/2006

Experimenters: Jason Marshall

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Cold Rolled Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate the three effective products on the fifth supplied oil.

Experimental Procedure: The three successful products from the first four oil removal trials were evaluated on the fifth oil. The products were diluted to 5% in 600 ml beakers using DI water and heated to 130 F on a hot plate.

Nine pre-weighed coupons were coated with the TuffDraw 1730 R using a handheld swab. Coupons were weighed a second time to determine the amount of oil added. Three coupons were cleaned in each solution for five minutes using minimal stir bar agitation. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and dried using a Master Appliance Heat gun at 500 F for 30 seconds. Once dry coupons were weighed a final time and product efficiencies were calculated.

Results: Only one of the three products, Inproclean 3800, removed over 70% of the oil using immersion cleaning. The follow table lists the amount of oil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|---|---|---|---|
| Aquavantage 1400 | 0.8292 | 0.332 | 59.96 |
| | 0.6821 | 0.1624 | 76.19 |
| | 0.8035 | 0.294 | 63.41 |
| Inproclean 3800 | 0.5866 | 0.1379 | 76.49 |
| | 0.6547 | 0.1968 | 69.94 |
| | 0.677 | 0.1983 | 70.71 |
| Sea Wash Blue | 0.8414 | 0.3769 | 55.21 |
| | 0.8509 | 0.3515 | 58.69 |
| | 0.8815 | 0.3466 | 60.68 |

Summary:

| **Substrates:** | Cold Rolled Steel | | | | |
|---|---|---|---|---|---|
| **Contaminants:** | Oil | | | | |
| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
| Brulin Corporation | Aquavantage 1400 | 5 | 66.52 | ☐ | |
| Oakite Products | Inproclean 3800 | 5 | 72.38 | ☑ | |
| Warren Chemical Company | Sea Wash Blue | 5 | 58.19 | ☐ | |

Conclusion: Follow up tests will be conducted using ultrasonic energy and/or longer cleaning times to improve efficiencies.