

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 08/04/2008

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Machine Construction Company

ProjectNumber: Project #2

Substrates: Steel

PartType: Coupon

Contaminants: Coatings

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To reevaluate selected products on the first supplied rust preventative using higher concentrations

Experimental Procedure: Five products from the previous trial were selected based on past testing results. The products were diluted to 20% using DI water in 600 ml beakers.

Fifteen preweighed steel coupons were coated with rust preventative VCI 325 using a hand held swab. Dirty weights were recorded. Three coupons were cleaned in each product for five minutes using minimal agitation. No rinse was used and coupons were air dried at room temperature. Once dry, final weights were recorded and efficiencies calculated.

Results: Only one product, SC Aircraft, showed improvement with the increase of concentration. For Aeromaster, there was a drastic drop off in efficiency due to the viscosity of the cleaning product. Without a rinse and at the higher concentration, more of the cleaning product remained on the coupon after cleaning, thus lowering the efficiency. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|-----------------------------|------------|----------|-----------|
| Beyond 2004 | | | |
| | 0.0604 | 0.0535 | 11.42 |
| | 0.1197 | 0.0636 | 46.87 |
| | 0.1308 | 0.0650 | 50.31 |
| SC Aircraft & Metal cleaner | | | |
| | 0.2012 | 0.0717 | 64.36 |
| | 0.3285 | 0.0790 | 75.95 |
| | 0.2501 | 0.0944 | 62.26 |
| Aquavantage 1400 | | | |
| | 0.1894 | 0.0556 | 70.64 |
| | 0.1649 | 0.0588 | 64.34 |
| | 0.1371 | 0.0810 | 40.92 |
| Ozzy Juice SW 1 | | | |
| | 0.1984 | 0.0982 | 50.50 |
| | 0.1283 | 0.0736 | 42.63 |
| | 0.1599 | 0.1001 | 37.40 |
| Aeromaster | | | |
| | 0.1634 | 0.1174 | 28.15 |
| | 0.1923 | 0.1185 | 38.38 |
| | 0.1101 | 0.1512 | -37.33 |

Summary:

| | | | | | |
|----------------------|---|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Steel | | | | |
| Contaminants: | Coatings | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Today & Beyond | Beyond 2004 | 20 | 36.20 | <input type="checkbox"/> | |
| Gemtek Products | SC Aircraft & Metal Cleaner Super Concentrate | 20 | 67.52 | <input checked="" type="checkbox"/> | |
| Brulin Corporation | Aquavantage 1400 | 20 | 58.64 | <input type="checkbox"/> | |

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|-----------------------|-----------------|----|-------|--------------------------|--|
| Chem Free Corporation | SW-1 Ozzy Juice | 20 | 43.51 | <input type="checkbox"/> | |
| Buckeye International | Aeromaster | 20 | 9.73 | <input type="checkbox"/> | |

Conclusion:

Testing will continue on the second supplied rust preventative with products at the lower concentration except for SC Aircraft. Additional non-aqueous products will be tested.