# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 09/14/1998

Experimenters: Jason Marshall

ClientType: Aluminum Job Shop

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Adhesive, Coatings, Resins/Rosins

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To further test the cleaners from the previous trial.

Experimental Procedure: Twelve preweighed coupons were contaminated with the sealant using a hand-held swab. Coupons were reweighed after sealant had dried.
Four cleaning chemistries were selected from the previous test based on cleaning efficiencies. Glass petri dishes, 4" diameter, were filled 1/3 full with each cleaner at 100% concentration. The dishes were heated to 130 F on a hot plate. One coupon was placed in the dish at a time and soaked at room temperature for 3 minutes. At the end of the soaking, the coupon was removed and wiped for 1 minute with a paper towel. Coupons were air dried and weighed to obtain their clean weights. Cleaning efficiencies were then calculated.

SUBSTRATE MATERIAL: Aluminum (Al 202-50552 H-32)
CONTAMINANTS: Acrylic Sealant-Aromatic Hydrocarbon (Toluene CAS# 108-88-3)

Results: A couple of the cleaners benefited from the increased temperatures. Others showed little or no improvement. Table 1 list the cleaning efficiencies of the four chemistries tested.

Table 1. Cleaning Efficiencies at 130 deg F

| | HTF 85 B | Citrisolv | Luminox | Soy Gold |
|---|---|---|---|---|
| Coupon 1 | 97.9 | 19.07 | 63 | 49.04 |
| Coupon 2 | 99.6 | 56.1 | 36.39 | 75.16 |
| Coupon 3 | 83.67 | 74.02 | 49.67 | 44.42 |
| Average | 93.72 | 49.73 | 49.69 | 56.21 |

The second table takes the average cleaner efficiency from both trials and compares them to each other.

Table 2. Comparison of Cleaning Efficiencies

| | HTF 85 B | Citrisolv | Luminox | Soy Gold |
|---|---|---|---|---|
| Trial 1 | 42.2 | 43.82 | 6.941 | 30.68 |
| Trial 2 | 93.72 | 49.73 | 49.69 | 56.21 |

Both HTF 85 B and Luminox increased with the addition heat whereas Citrisolv and Soy Gold had marginal increases.

Summary:

| **Substrates:** | Aluminum |
|---|---|
| **Contaminants:** | Adhesive, Coatings, Resins/Rosins |

| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|---|---|---|---|---|---|
| Tarksol Inc | Tarksol HTF-50 | 100 | 93.72 | ☑ | |
| Pride International Inc | Citrisolv Plus | 100 | 49.73 | ☐ | |
| Alconox Inc | Luminox | 100 | 49.69 | ☐ | |
| AG Environmental Products | Soy Gold 1000 | 100 | 56.21 | ☐ | |

Conclusion: The T-Square sample had over 90% removal of the contaminant when heated to 130 F. The next phase of testing will involve the customer supplied painted parts. Compatibility of HTF 85 B with the paint will be examined. The MSDS of HTF 85 B has been included with this report.