

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
 DateRun: 10/29/2002
 Experimenters: Jason Marshall
 ClientType: Manufacturing
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: To evaluate client requested cleaner on supplied contaminant

Experimental Procedure: One client requested product was diluted to 3% (Liquinox) in 1500 ml beaker and the other was diluted to 5% in 400 ml beaker using DI water. The solutions were heated to 130 F on a hot plate. Six preweighed coupons were coated with Milacron Marketing Company CIMTECH® 310 metal working fluid concentrate (102-71-6, 78-96-6, 26896-20-8) using a hand held swab. Coupons were then reweighed using a Denver Instruments A250 balance to determine the amount of contaminant added. The coupons were immersed into each solution and cleaned for 5 minutes using stir bar agitation. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and finally dried using a Master Appliance Hot Air gun at 500 F for 30 seconds. After the coupons were dried, final weights were recorded and efficiencies calculated for each cleaning solution.

Results: The Det-O-Jet cleaner was more effective than the Liquinox solution. The table below lists the amount of contaminant applied and remaining as well as the product efficiency.

| Cleaner | Initial wt | Final wt | % Removed |
|-----------|------------|----------|-----------|
| Liquinox | 0.1857 | 0.0438 | 76.41 |
| | 0.4069 | 0.0428 | 89.48 |
| | 0.1169 | 0.0437 | 62.62 |
| Det-O-Jet | 0.1841 | 0.02 | 89.14 |
| | 0.2441 | 0.0225 | 90.78 |
| | 0.1244 | 0.0131 | 89.47 |

Summary:

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|----------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | | Aluminum | | | |
| Contaminants: | | Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Alconox Inc | Liquinox | 3 | 76.17 | <input type="checkbox"/> | |
| Alconox Inc | Det-O-Jet | 5 | 89.80 | <input checked="" type="checkbox"/> | |

Conclusion: Having been successful in removing the metal working fluid, Det-O-Jet will be evaluated on supplied parts using ultrasonic cleaning and OSEE analysis.