

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997
 DateRun: 10/01/1997
 Experimenters: Jason Marshall, Prashant Trivedi
 ClientType: Manufacturer of Computer Parts
 ProjectNumber: Project #1
 Substrates: Stainless Steel
 PartType: Part
 Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Visual
 Purpose: Find safer cleaning alternatives for oil removal

Experimental Procedure: Five aqueous cleaners were selected based on previous laboratory trials. Five percent solution were made for each of the cleaners in beakers using DI water. The solutions were then heated to 130 F on a hot plate. Two parts were submerged into the solutions and stir bar agitation was used. The parts were cleaned for two minutes. At the end of the cleaning cycle, the parts were rinsed in DI water at 130 F in beakers. After rinsing, an infrared heat lamp was used to dry the parts for three minutes. After the parts were dried, they were inspected visually for cleanliness.
 SUBSTRATE MATERIAL: Stainless steel
 CONTAMINANTS: Client supplied oil

Results: Each of the cleaners left a substantial amount of oil on the parts under these experimental conditions. Despite the incomplete removal of the oil, the cleaners were ranked according to the amount that they did remove. The rankings were based using the following range: excellent > good > okay > fair > poor. Table-1 shows the rankings for the test.
 Table 1 Cleaner Rankings

| | |
|---------------|-----------|
| LPS | FAIR |
| FINE ORGANICS | OKAY |
| OAKITE | POOR |
| POLYCHEM | FAIR |
| W.R. GRACE | GOOD/OKAY |

From the test, the best two cleaners were selected to be run in the next trial; W.R. Grace Daraclean 282GF and Fine Organics F020805M.

Summary:

| | | | | | |
|--------------------------|-----------------------------|---|--------------------|-------------------------------------|----------------------|
| Substrates: | | Stainless Steel | | | |
| Contaminants: | | Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| LPS Laboratories | Precision Clean Concentrate | 5 | | <input type="checkbox"/> | |
| Fine Organic Corporation | FO 2085 M | 5 | | <input checked="" type="checkbox"/> | |
| Oakite Products | Inproclean 2500 | 5 | | <input type="checkbox"/> | |
| US Polychem Corporation | Polyspray Jet 790 P | 5 | | <input type="checkbox"/> | |
| Magnaflux | Daraclean 282 GF | 5 | | <input checked="" type="checkbox"/> | |

Conclusion: After cleaning the parts using only stir bar agitation, two cleaners were selected to be tested in the next step of cleaning. This next phase will employ Ultrasonic cleaning at 40 KHz in place of the stir bar agitation. This will determine if the cleaner(s) can be used to clean the oil from the parts completely.