# CLEANING LABORATORY EVALUATION SUMMARY

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|---|---|
| SCL #: | 1998 |
| DateRun: | 09/10/1998 |
| Experimenters: | Jason Marshall, Shyam Sarda |
| ClientType: | Electromagnetic Manufacturer |
| ProjectNumber: | Project #1 |
| Substrates: | Copper, Nickel |
| PartType: | Coupon |
| Contaminants: | Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil |
| Cleaning Methods: | Ultrasonics |
| Analytical Methods: | Gravimetric |
| Purpose: | To test previously tested cleaning chemistries on second contaminant oil. |
| Experimental Procedure: | Six preweighed coupons were contaminated with oil using a hand held swab and then weighed. Two cleaning solutions were made into 15% solutions using DI water in a 600 mL beaker. The solutions were heated to 130 F on a hot plate. The beakers were then placed into a Crest 40 kHz ultrasonic tank model 4Ht 1014-6 also at 130 F. Three coupons were placed in each cleaner for a set cleaning time. The cleaning time was 5 minutes. Coupons were rinsed in tap water at 120 F for 30 seconds and air dried. Final weights were taken after drying was complete.<br><br>SUBSTRATE MATERIAL: Copper/Nickel 70/30<br>CONTAMINANTS: Oil- Indopol L-14 (Polybutene/butene copolymer CAS# 9003-29-6) |
| Results: | The WR Grace had limited success in removing the oil after 5 minutes of cleaning in the ultrasonic tank. Calgon AK 6215 worked exceptionally well during the cleaning period. Table 1 lists the cleaning results from this trial. |

Table 1. Cleaning Efficiencies

| Daraclean | Ak-6215 |
|---|---|
| 5min | 5min |
| 60.21 | 94.65 |
| 76.39 | 97.12 |
| 90.22 | 100.4 |
| 75.61 | 97.39 |
| 15.02 | 2.884 |

Summary:

| **Substrates:** | Copper, Nickel | | | | |
|---|---|---|---|---|---|
| **Contaminants:** | Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil | | | | |
| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
| Calgon Corporation | AK 6215 | 15 | 97.39 | ☑ | |
| Magnaflux | Daraclean 282 | 15 | 75.61 | ☐ | |

Conclusion: Calgon’s Ak-6215 removed almost all of the contaminant after 5 minutes of cleaning. MSDSs of both chemistries have been included with this report.