# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 08/21/2006

Experimenters: Jason Marshall

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Copper

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate products for oil removing using ultrasonic cleaning.

Experimental Procedure: The two products from the previous trial were diluted to 5% in 250 ml beakers using DI water and heated to 130 F in a Branson 3510 ultrasonic tank and degassed for 5 minutes.

Six preweighed coupons were coated with the supplied oil using a handheld swab. Coupons were weighed a second time to determine the amount of buffing compound added. Three coupons were cleaned in each solution for five minutes using 40 kHz ultrasonic agitation. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and dried using a dry compressed air for 30 seconds. Once dry coupons were weighed a final time and product efficiencies were calculated.

Results: Both products removed over 85% of the oil using ultrasonic energy. The table below lists the amount of buffing compound added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|---|---|---|---|
| Daraclean 283 | 0.1556 | 0.0256 | 83.55 |
| | 0.2412 | 0.0156 | 93.53 |
| | 0.3283 | 0.0180 | 94.52 |
| Polyspray Jet 790 XS | 0.4437 | 0.0340 | 92.34 |
| | 0.2028 | 0.0417 | 79.44 |
| | 0.3201 | 0.0457 | 85.72 |

Summary:

| **Substrates:** | Copper |
|---|---|
| **Contaminants:** | Oil |

| **Company Name:** | **Product Name:** | **Conc.:** | **Efficiency:** | **Effective:** | **Observations:** |
|---|---|---|---|---|---|
| Magnaflux | Daraclean 283 | 5 | 90.53 | ☑ | |
| US Polychem Corporation | Polyspray Jet 790 XS | 5 | 85.83 | ☑ | |

Conclusion: With both products successful on the buffing compound and oil, the next steps will be to evaluate these cleaners on supplied parts at or after workshop.