

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008
 DateRun: 06/26/2008
 Experimenters: Jason Marshall, Shweta Bansal
 ClientType: Tool Manufacturer
 ProjectNumber: Project #1
 Substrates: Steel
 PartType: Part
 Contaminants: Metal fines
 Cleaning Methods: Ultrasonics
 Analytical Methods: Visual

Purpose: To evaluate five products at higher concentrations.

Experimental Procedure: The top five products were selected from the previous lab trial. Products were diluted to 10% using DI water in 300 ml glass beakers. Solutions were used at 68 F. The beakers were immersed in a water bath in a Branson 40 kHz ultrasonic tank. Products were degassed for five minutes.
 A set of three soiled steel parts (with metal grit/fines) were immersed into each product and cleaned for 5 minutes and another set for 10 minutes using ultrasonic agitation. Following cleaning, coupons were observed for cleanliness.

Results: As in the previous trial Daraclean 282 GF cleaned parts at both 5 and 10 minutes were visually the cleanest. M Aero provided the second cleanest parts followed by Metalnox M6310. The table lists the rankings for each product at both cleaning times. The increase in concentration yielded parts that were cleaner than at the 5% dilution.

| Product | 5 Min Rank | 10 Min Rank |
|----------|------------|-------------|
| Micro 90 | 5 | 5 |
| 790xs | 4 | 4 |
| 282 GF | 1 | 1 |
| M6310 | 3 | 3 |
| M Aero | 2 | 2 |

Summary:

| Substrates: | | Steel | | | | |
|------------------------------------|--------------------------------------|-------------|-------------|-------------------------------------|---------------|--|
| Contaminants: | | Metal fines | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| International Products Corporation | Micro 90 Conc. | 10 | | <input type="checkbox"/> | | |
| US Polychem Corporation | Polyspray Jet 790 XS | 10 | | <input type="checkbox"/> | | |
| Magnaflux | Daraclean 282 GF | 10 | | <input checked="" type="checkbox"/> | | |
| Kyzen Corporation | Metalnox M6310 (For Comparison Only) | 10 | | <input checked="" type="checkbox"/> | | |
| Church & Dwight Co Inc. | Armakleen M Aero | 10 | | <input checked="" type="checkbox"/> | | |

Conclusion: Parts were cleaner after 10 minutes of ultrasonic cleaning at a 10% dilution. Daraclean 282 GF was the most effective cleaner. Another parts cleaning trial will be conducted using both concentrations for the cleaning products but will increase the temperature to 130 F. Photos of parts are included below for 5 and 10 minute cleaning at 10%.