

# 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: Cutting/Tapping Fluids, Lubricating/Lapping Oils

Cleaning Methods: Ultrasonics

Analytical Methods: Visual

Purpose: To evaluate past effective products on second set of supplied parts contaminated with cutting and lubricants.

Experimental Procedure: The top five products were selected from the previous lab trial. Products were diluted to 5% using DI water in 300 ml glass beakers. Water also was used. Solutions were heated to 130 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 (coated with cutting fluids and lubricants) were immersed into each product and cleaned for 5 minutes using ultrasonic agitation. Following cleaning, coupons were observed for cleanliness.

Results: The Daraclean 282 GF cleaned parts at both 5 and 10% dilutions at 130 F were visually the cleanest. At 5%, Micro 90 was the next cleanest followed by Polyspray Jet 790 XS. At 10%, Polyspray Jet 790xs was the second most effective product followed by M Aero.

| Product  | 5 Min Rank | 10 Min Rank |
|----------|------------|-------------|
| Micro 90 | 2          | 4           |
| 790xs    | 3          | 2           |
| 282 GF   | 1          | 1           |
| M6310    | 5          | 5           |
| M Aero   | 4          | 3           |
| Water    | 6          | 6           |

Summary:

|                                    |                                                  |        |             |                                     |               |
|------------------------------------|--------------------------------------------------|--------|-------------|-------------------------------------|---------------|
| Substrates:                        | Steel                                            |        |             |                                     |               |
| Contaminants:                      | Cutting/Tapping Fluids, Lubricating/Lapping Oils |        |             |                                     |               |
| Company Name:                      | Product Name:                                    | Conc.: | Efficiency: | Effective:                          | Observations: |
| International Products Corporation | Micro 90 Conc.                                   | 5      |             | <input checked="" type="checkbox"/> |               |
| US Polychem Corporation            | Polyspray Jet 790 XS                             | 5      |             | <input checked="" type="checkbox"/> |               |
| Magnaflux                          | Daraclean 282 GF                                 | 5      |             | <input checked="" type="checkbox"/> |               |
| Kyzen Corporation                  | Metalnox M6310 (For Comparison Only)             | 5      |             | <input type="checkbox"/>            |               |
| Church & Dwight Co Inc.            | Armakleen M Aero                                 | 10     |             | <input checked="" type="checkbox"/> |               |
| Water                              | Water                                            | 100    |             | <input type="checkbox"/>            |               |

Conclusion: Parts cleaned with Daraclean 282 GF were the cleanest in all of the parts cleaning trials conducted. Piloting with this product, Polyspray 790xs and Armakleen M Aero (the top three products overall) is recommended. Photos of parts are included below for 5 and 10% cleaning at 5 minutes and 130 F.