

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007

DateRun: 02/02/2007

Experimenters: Jason Marshall

ClientType: Jewelry Mfr

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Part

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Ultrasonics

Analytical Methods: Visual

Purpose: To evaluate selected products on supplied parts using ultrasonic cleaning

Experimental Procedure: Three products were selected from previous trial based on effectiveness. Each product was diluted to 5% using DI water in 600 ml beakers. Each solution was heated to 150 F in a Branson 3510 ultrasonic tanked filled with water. The solutions were degassed for 5 minutes.

Three stainless steel rings without lacquer finish but were coated with Jackonslea Grey Color 305 A (1344-28-1) were cleaned in each solution for 5 minutes using 40 kHz ultrasonic cleaning. Rings were rinsed for 15 seconds in 120 F tap water and dried using compressed air at room temperature for 30 seconds. If the rings were not completely clean after the initial 5 minutes, the rings would be cleaned for another 5 minutes. In addition, if the rings were not completely cleaned after 15 minutes, new concentrations would be tested (10 and 20%).

Results: The observations made for each product at the various times and concentrations are recorded in the table below.

| Product | Conc | Time | Observation                                   |
|---------|------|------|---|
| Det 8   | 5    | 5    | Not clean. Most clean of three products at 5% |
|         |      | 10   | Almost clean                                  |
|         |      | 15   | Still not 100% clean                          |
|         | 10   | 15   | Looked nearly clean, about same as MC 580     |
|         |      | 20   | All rings looked cleaned                      |
|         |      | 10   | All rings looked cleaned                      |
| MC 580  | 5    | 5    | Not clean. About the same as 790 XS           |
|         |      | 10   | Cleaner than Det 8                            |
|         |      | 15   | Still not 100% clean                          |
|         | 10   | 15   | Looked nearly clean, about same as Det 8      |
|         |      | 20   | All rings looked cleaned                      |
|         |      | 10   | All rings looked cleaned                      |
| 790 XS  | 5    | 5    | Not clean. About the same as MC 580           |
|         |      | 10   | About the same as Det 8                       |
|         |      | 15   | Still not 100% clean                          |
|         | 10   | 15   | No 100% clean                                 |
|         |      | 20   | All rings looked cleaned                      |

Summary:

| <b>Substrates:</b>             |  | Stainless Steel             |        |             |                                     |               |
|--------------------------------|--|-----------------------------|--------|-------------|-------------------------------------|---------------|
| <b>Contaminants:</b>           |  | Buffing/Polishing Compounds |        |             |                                     |               |
| Company Name:                  |  | Product Name:               | Conc.: | Efficiency: | Effective:                          | Observations: |
| Alconox Inc                    |  | Detergent 8                 | 20     |             | <input checked="" type="checkbox"/> |               |
| Matchless Metal Polish Company |  | MC 580                      | 20     |             | <input checked="" type="checkbox"/> |               |
| US Polychem Corporation        |  | Polyspray Jet 790 XS        | 20     |             | <input checked="" type="checkbox"/> |               |

Conclusion: All three products worked well at a 20% concentration for 10 minutes at 150 F. Both Detergent 8 and MC 580 worked well at 10% concentration for 15 minutes at 150 F.