

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1995
 DateRun: 04/18/1995
 Experimenters: Donald Garlotta
 ClientType: Biomedical Device Manufacturer
 ProjectNumber: Project #1
 Substrates: Plastic
 PartType: Part
 Contaminants: Lubricating/Lapping Oils, Fingerprints
 Cleaning Methods: Ultrasonics
 Analytical Methods: Visual
 Purpose: To determine effectiveness of Sea Wash Neutral

Experimental Procedure: Cleaning was performed in the Crest Ultrasonic unit for 15 minutes at 140 F. The parts were then rinsed in a tap water bath and then a DI water bath, both at 140 F and for 5 minutes. The parts were then dried under air knives for two minutes and then under an IR lamp for 30 minutes. The parts were then analyzed for cleanliness by visual inspection for residual oil and/or water spotting. A water break test was used to detect any non-visible oil. For a oil-free surface, the water should sheet off where the water would bead up on a contaminated surface.

CLEANING CONDITIONS:

| | time (min) | Temp (°F) |
|-------------------------------------|------------|-----------|
| Ultrasonics | 15 | 142 |
| #1 RINSE/TAP H ₂ O | 5 | 139 |
| #2 RINSE/DEIONIZED H ₂ O | 5 | 142 |
| DRY air knives | 2 | room |
| DRY- IR Lamps | 30 | 105 |

Clear Polycarbonate pieces
 Fingerprints and light oils

Results: Parts came out very clean, no visible contamination and the water sheets off evenly thus indicating a clean surface. Drying time can be cut down considerably since most of the water is blown off by the air knives (10 minutes would probably be adequate).

Summary:

| | | | | | |
|-------------------------|--|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Plastic | | | | |
| Contaminants: | Lubricating/Lapping Oils, Fingerprints | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Warren Chemical Company | Sea Wash Neutral | 5 | 0.00 | <input checked="" type="checkbox"/> | |

Conclusion: The Sea Wash Neutral appears to be a cleaner that would be suitable for Biomedical Device Manufacturer's needs.