

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
 DateRun: 01/03/2002
 Experimenters: Jason Marshall
 ClientType: Metal Working
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Part
 Contaminants: Lubricating/Lapping Oils
 Cleaning Methods: Ultrasonics
 Analytical Methods: Visual, Wipe

Purpose: To clean supplied parts with selected cleaners.

Experimental Procedure: Four lab selected and one client supplied cleaner were diluted to 5% using DI water in 600 ml beakers. Each solution was heated to 130 F in a Crest 40 kHz ultrasonic tank and degassed for 5 minutes prior to cleaning parts. Two parts were cleaned in each solution, one part at a time, for 10 minutes. Following the cleaning, the parts were rinsed in a tap water bath at 120 F for 15 seconds and then dried using a Master Appliance Heat gun at 500 F for 1 minute. Parts were observed visually and wiped with a white swab to determine level of cleanliness.

Contaminant: Fuchs Renocut 127 (mineral oil)

Results: All of the parts cleaned looked very clean, with no visible signs of oil anywhere. The cleanliness of the parts was nearly identical for all of the cleaners evaluated. The large lamp parts had some water spots that developed during the drying process. The following table lists the observations for each part cleaned.

Table 1. Observations

| Cleaner | Part Description | Observations |
|------------|------------------|---|
| Brulin | Flow Cell (1) | Very Clean, nothing on swab |
| | Flow Cell (2) | Very Clean, nothing on swab |
| Innovative | Manifold | Very Clean, nothing on swab |
| | Flow Cell | Very Clean, nothing on swab |
| T& B | Manifold | Very Clean, nothing on swab |
| | Flow Cell | Very Clean, nothing on swab |
| Valtech | Manifold | Very Clean, nothing on swab |
| | Lamp | Very Clean, some water spots from drying, nothing on swab |
| Texo | Manifold | Very Clean, some water spots from drying, nothing on swab |
| | Lamp | Very Clean, some water spots from drying, nothing on swab |

Summary:

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|-------------------------|--------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Aluminum | | | | |
| Contaminants: | Lubricating/Lapping Oils | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Brulin Corporation | Formula 815 GD | 5 | | <input checked="" type="checkbox"/> | |
| Innovative Organics Inc | Amberclean 527 L | 5 | | <input checked="" type="checkbox"/> | |
| Today & Beyond | Beyond 2004 | 5 | | <input checked="" type="checkbox"/> | |
| Valtech Corporation | Valtron SP 2275 | 5 | | <input checked="" type="checkbox"/> | |

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| Texo Corporation | Texo Cleaner 127 | 5 | | <input checked="" type="checkbox"/> | |
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Conclusion: All products tested were very effective in cleaning the supplied parts.