

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
 DateRun: 04/04/2002
 Experimenters: Jason Marshall
 ClientType: Cleaning Equipment Mfr
 ProjectNumber: Project #2
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Coatings, Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
 Cleaning Methods: Ultrasonics
 Analytical Methods:
 Purpose: 2nd contaminant cleaning

Experimental Procedure: Eighteen preweighed coupons were coated with The Valvoline Co, Tectyl 505 (8052-41-3) rust preventative, using a hand held swab. Coupons were reweighed. Nine coupons were clipped to wire racks and immersed into the Flow-Matic machine and cleaned for 1 minutes using ultrasonics at 92 F, removed and rinsed in a tap water spray and re-mmersed into the ultrasonics for an additional 1 minute followed by a second 5 second rinse. The nine coupons were then dried using an air knife for 15 seconds and then using a Master Appliance heat gun at 500 F for 15 seconds. The second set of nine coupons followed the same cleaning cycle except they were hung on a wire stand and immersed into a Crest 40 kHz ultrasonic tank.

Results: Comparison of the two processes revealed that the Flow-Matic system was more effective than the traditional ultrasonic equipment. The following table lists the results obtained during the evaluation.

Table 1. Cleaning Efficiencies

| Process | Flow-Matic | Traditional |
|---------|------------|-------------|
| | 99.93 | 99.46 |
| | 99.93 | 98.41 |
| | 98.97 | 98.90 |
| | 99.53 | 98.94 |
| | 99.95 | 96.30 |
| | 100.04 | 97.40 |
| | 99.24 | 97.45 |
| | 100.12 | 98.71 |
| | 100.06 | 99.51 |
| Average | 99.75 | 98.34 |
| Std Dev | 0.41 | 1.08 |

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|----------|----------------------|----------------------|---|--------------------|-------------------------------------|----------------------|
| Summary: | Substrates: | | Stainless Steel | | | |
| | Contaminants: | | Coatings, Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil | | | |
| | Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| | Water | Water | 100 | 98.34 | <input checked="" type="checkbox"/> | Traditional system |
| | Water | Water | 100 | 99.75 | <input checked="" type="checkbox"/> | Flow-Matic system |

Conclusion: The Flow-Matic system was more effective than the traditional ultrasonic method.