

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 12/21/2021

Experimenters: Nicole Kebler

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Carbon Steel

PartType: Part

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate industrial cleaners for the removal of oil from provided carbon steel contaminated parts.

Experimental Procedure: The cleaners were put into beakers and heated to 140 F in the ultrasonics tank. The coupons were weighed for dirty weights and once the cleaners were at the correct temperatures, the coupons were put into the beakers. The ultrasonics tank was turned on and ran for 15 minutes. The coupons were taken out and left to dry fully. Once dry, the clean weights were taken. The coupons were cleaned again till all remaining oil was removed from the coupons and the initial weights were taken. The ultrasonics tank was run at 40 KHz.

Results: All cleaners were effective at removing the oil from the surface of the parts and all had over a 99% removal effectiveness. Visually Surface Cleanse out performed the others and did not have many residual spotting left on the surface whereas the Mirachem and Micro 90 had some spotting left on the surface of the part.

| Cleaner | Initial wt. of cont. | Final wt. of cont. | Average |
|--------------------|----------------------|--------------------|---------|
| Mirachem 2:1 | 0.2032 | 0.0013 | 99.36 |
| Micro 90 2% | 0.1880 | 0.0006 | 99.68 |
| Surface Cleanse 2% | 0.2326 | 0.0006 | 99.74 |

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|----------|------------------------------------|--|---------------|--------------------|-------------------------------------|----------------------|
| Summary: | Substrates: | Carbon Steel | | | | |
| | Contaminants: | Oil | | | | |
| | Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| | Mirachem Corporation | Mirachem 500 | 67 | 99.36 | <input checked="" type="checkbox"/> | |
| | International Products Corporation | Micro 90 Conc. | 2 | 99.68 | <input checked="" type="checkbox"/> | |
| | International Products Corporation | Surface Cleanse Concentrated Neutral 930 | 2 | 99.74 | <input checked="" type="checkbox"/> | |

Conclusion: Additional testing with a rinse step for Mirachem and Micro 90 is needed to try and minimize spotting. Next steps are to clean coupons with Surface Cleanse and send them out to the company to test for adhesion performance.