

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 01/18/2022

Experimenters: Nicole Kebler

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Carbon Steel

PartType: Part

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate industrial cleaners for the removal of oil from previously contaminated carbon steel parts using unheated immersion with agitation via a stir bar.

Experimental Procedure: One coupon per cleaner that was previously soiled by the company was weighted for dirty weights. The coupons were then put into the cleaner and immersed for 15 minutes with a stir bar that was used at 400 rpm. After the 15 minutes, they were taken out and left to dry overnight. The clean weights were taken the next day. The coupons were then wiped clean till all oil was removed from the surface and were weighed for initial weights.

Results: None of the cleaner were effective at removing oil from the surface of the coupon and visually all coupons had oil left on the surface after drying overnight. Citrinox had the highest removal at 76% but oil remained on the surface. The lowest removal was SuperSolv at 25% removal. The rest ranged between 35-57% removal.

| Cleaner | Concentration | Initial wt. of cont. | Final wt. of cont. | Average |
|-----------------|---------------|----------------------|--------------------|---------|
| Mirachem 500 | 2:1 | 0.2188 | 0.1268 | 42.05 |
| Super Solv | 1:1 | 0.2024 | 0.1508 | 25.49 |
| Surface Cleanse | 2% | 0.2989 | 0.1272 | 57.44 |
| Micro 90 | 2% | 0.1781 | 0.1175 | 34.03 |
| Alconox | 2% | 0.2463 | 0.1302 | 47.14 |
| Shopmaster LPH | 10% | 0.2388 | 0.1408 | 41.04 |
| Liquinox | 2% | 0.2571 | 0.1662 | 35.36 |
| Citrinox | 2% | 0.3145 | 0.0748 | 76.22 |

Summary:

| Substrates: | | Carbon Steel | | | | |
|------------------------------------|--|--------------|-------------|--------------------------|---------------|--|
| Contaminants: | | Oil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Mirachem Corporation | Mirachem 500 | 67 | 42.05 | <input type="checkbox"/> | | |
| Gemtek Products | SC Supersolve Safety Solvent | 50 | 25.49 | <input type="checkbox"/> | | |
| International Products Corporation | Surface Cleanse Concentrated Neutral 930 | 2 | 57.44 | <input type="checkbox"/> | | |
| International Products Corporation | Micro 90 Conc. | 2 | 34.03 | <input type="checkbox"/> | | |
| Alconox Inc | Alconox | 2 | 47.14 | <input type="checkbox"/> | | |
| Buckeye International | Shopmaster LPH | 10 | 41.04 | <input type="checkbox"/> | | |
| Alconox Inc | Liquinox | 2 | 35.36 | <input type="checkbox"/> | | |
| Alconox Inc | Citrinox | 2 | 76.22 | <input type="checkbox"/> | | |

Conclusion: None of the cleaners were effective using unheated immersion with a stir bar. Next steps are to continue to use ultrasonics cleaning.