

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 05/23/2023

Experimenters: Amelia Wagner

ClientType: Lab

ProjectNumber: Project #8

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Greases, Lubricating/Lapping Oils, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-33 (a D limonene and Dimethyl Glutarate mixture) and SB-31 (a Benzyl Alcohol and Ethyl Lactate mixture) in removing several production oils and greases from stainless steel coupons as a potential replacement for TCE unheated immersion cleaning method.

Experimental Procedure: Three stainless steel coupons were used for each of the two soils being tested against both cleaners for a total of 12 coupons. The initial weights of each coupon were recorded. The bottom third of every coupon was soiled by applying the corresponding soil with a swab. The dirty weights of each coupon were then recorded. The coupons were then subjected unheated immersion in SB-33 and SB-31 with the stir bar at 200rpm for 15 mins. The next morning, the clean weights of each coupon were taken

Results:

| Soil | Use | CAS | | | | |
|-----------|---------------------|--|-------------------|---------------|-------|-----------|
| Hocut 795 | Metalworking Fluid | 78-96-6, 101-83-7, 10043-35-3, 2634-33-5 | | | | |
| RI 780 | Corrosion Inhibitor | 64742-88-7 | | | | |
| Cleaner | Soil | Initial wt of cont. | Final wt of cont. | %Cont Removed | % AVG | % Overall |
| SB-33 | Hocut 795 | 0.0248 | 0.0053 | 78.63 | 73.09 | 79.60 |
| | | 0.0521 | 0.0051 | 90.21 | | |
| | | 0.0113 | 0.0056 | 50.44 | | |
| | RI 780 | 0.0205 | 0.0039 | 80.98 | 86.10 | |
| | | 0.0169 | 0.0002 | 98.82 | | |
| | | 0.0186 | 0.0040 | 78.49 | | |
| SB-31 | Hocut 795 | 0.0728 | 0.0375 | 48.49 | 38.64 | 59.07 |
| | | 0.0352 | 0.0331 | 5.97 | | |
| | | 0.0799 | 0.0308 | 61.45 | | |
| | RI 780 | 0.0286 | 0.0045 | 84.27 | 79.49 | |
| | | 0.0299 | 0.0033 | 88.96 | | |
| | | 0.0236 | 0.0082 | 65.25 | | |

Summary:

| | | | | | |
|----------------------|----------------------|--|--------------------|-------------------------------------|----------------------|
| Substrates: | | Stainless Steel | | | |
| Contaminants: | | Greases, Lubricating/Lapping Oils, Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| TURI Cleaning lab | SB-33 | 100% | 73.00 | <input checked="" type="checkbox"/> | on soil Hocut 795 |
| TURI Cleaning lab | SB-33 | 100% | 86.00 | <input checked="" type="checkbox"/> | on soil RI 780 |
| TURI Cleaning lab | SB-31 | 100 | 38.00 | <input type="checkbox"/> | on soil Hocut 795 |
| TURI Cleaning lab | SB-31 | 100 | 79.00 | <input type="checkbox"/> | on soil RI 780 |

Conclusion: SB-33 is an effective alternative to TCE in removing Hocut 795 and RI 780 using unheated immersion method. SB-31 is an effective alternative to TCE in removing RI 780 using unheated immersion method.