

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024
 DateRun: 06/18/2024
 Experimenters: Tatyanna Moreland Junior, Nasser Anise
 ClientType: Lab
 ProjectNumber: Project #8
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Lubricating/Lapping Oils, Oil
 Cleaning Methods:
 Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of SB-27 and SB-32 in removing soluble oil #35 and mobil DTE from stainless steel coupons as a potential replacement for TCE with a heated immersion cleaning method.

Experimental Procedure: 12 stainless steel coupons were used for both cleaners being tested, for a total of 6 coupons per cleaner. The initial weights of each coupon were recorded. The bottom third of every coupon was soiled by applying the contaminate with a swab. The dirty weights of each coupon were then recorded. The coupons were then subjected to heated immersion at 125 degrees Fahrenheit in the cleaners with a 240 RPM spin for 10 minutes. After the coupons were cleaned, they were left to air-dry overnight. The next morning, the clean weights of each coupon were taken.

Results:

| Cleaner | Soil | Coupon # | Initial wt of cont. | Final wt of cont. | %Cont Removed | Average % Removal | Average Cleaner % |
|---------|------------------|----------|---------------------|-------------------|---------------|-------------------|-------------------|
| SB-27 | Soluble Oil # 35 | 2 | 0.0118 | 0.0017 | 85.59322034 | 92.01 | 90.40 |
| | | 66 | 0.0635 | 0.0007 | 98.8976378 | | |
| | | 67 | 0.1204 | 0.0102 | 91.5282392 | | |
| | Mobile Oil | 36 | 0.0201 | 0.0017 | 91.54228856 | 88.80 | |
| | | 57 | 0.0268 | 0.0035 | 86.94029851 | | |
| | | 59 | 0.0356 | 0.0043 | 87.92134831 | | |
| SB-32 | Soluble Oil # 35 | 5 | 0.044 | 0.0034 | 92.27272727 | 89.01 | 89.15 |
| | | 9 | 0.0805 | 0.0053 | 93.41614907 | | |
| | | 28 | 0.06 | 0.0112 | 81.33333333 | | |
| | Mobile Oil | 34 | 0.0491 | 0.0035 | 92.87169043 | 89.29 | |
| | | 54 | 0.0376 | 0.0036 | 90.42553191 | | |
| | | 55 | 0.0376 | 0.0058 | 84.57446809 | | |

Summary:

| | | | | | |
|----------------------|----------------------|--|--------------------|-------------------------------------|----------------------|
| Substrates: | | Stainless Steel | | | |
| Contaminants: | | Lubricating/Lapping Oils, Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| TURI Cleaning lab | SB-27 | 70 percent t-Butyl Acetate, 30 percent Benzyl Alcohol | 90.40 | <input checked="" type="checkbox"/> | |
| TURI Cleaning lab | SB-32 | 81 percent Ethyl Lactate, 19 percent Propylene Carbonate | 89.15 | <input checked="" type="checkbox"/> | |

Conclusion:

Overall, the cleaners did an effective job removing the contaminants.