

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020
 DateRun: 06/15/2020
 Experimenters: Alicia McCarthy
 ClientType: Aircraft Parts Manufacturer
 ProjectNumber: Project #1
 Substrates: Glass/Quartz
 PartType: Coupon
 Contaminants: Resins/Rosins
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric, Visual
 Purpose: To evaluate the effectiveness and performance of various cleaners on the removal of rosin #4 from glass coupons.

Experimental Procedure: A total of seven pre-weighted glass coupons were soiled, all with the given containment, Rosin #4. The bottom one third of the coupon was soiled on one side using a handheld swab. Each coupon was placed into a beaker and immersed for a total of 60 minutes. During this process, any noticeable soil removal was observed at 5,15,30 and 60 minutes. Coupons were allowed to dry for five minutes, and afterwards final weights were recorded as well as efficiency of removal was calculated for each coupon cleaned.

Results:

| Time | Cleaner | Initial wt | Dirty wt | Clean wt. | Initial wt of cont. | Final wt of cont. | %Cont Removed |
|------------|---------------------|------------|----------|-----------|---------------------|-------------------|---------------|
| 30 Minutes | Ozzy Juice SW 3 | 15.7476 | 17.5817 | 17.6538 | 1.8341 | 1.9062 | -3.93 |
| | SC Actisolv | 15.4629 | 18.7466 | 18.7958 | 3.2837 | 3.3329 | -1.50 |
| | SC Maxisolv | 15.4258 | 17.3284 | 17.0804 | 1.9026 | 1.6546 | 13.03 |
| | Method Detergent | n/a | n/a | n/a | n/a | n/a | n/a |
| | 7th Generation | 15.6309 | 17.2871 | 17.2634 | 1.6562 | 1.6325 | 1.43 |
| | Dimethyl glutarate | 15.9413 | 18.1324 | 18.0100 | 2.1911 | 2.0687 | 5.59 |
| | Propylene carbonate | 15.4282 | 17.7850 | 17.8396 | 2.3568 | 2.4114 | -2.32 |
| | Smartsolv 605 | 15.8378 | 18.0651 | 17.7137 | 2.2273 | 1.8759 | 15.78 |
| | | | | | | | |
| Time | Cleaner | Initial wt | Dirty wt | Clean wt. | Initial wt of cont. | Final wt of cont. | %Cont Removed |
| 60 Minutes | Ozzy Juice SW 3 | 15.7476 | 17.5817 | 18.8092 | 1.8341 | 3.0616 | -66.93 |
| | SC Actisolv | 15.4629 | 18.7466 | 17.6775 | 3.2837 | 2.2146 | 32.56 |
| | SC Maxisolv | 15.4258 | 17.3284 | 16.9170 | 1.9026 | 1.4912 | 21.62 |
| | | | | | | | |
| | 7th Generation | 15.6309 | 17.2871 | 17.2814 | 1.6562 | 1.6505 | 0.34 |
| | Dimethyl glutarate | 15.9413 | 18.1324 | 17.724 | 2.1911 | 1.7827 | 18.64 |
| | Propylene carbonate | 15.4282 | 17.7850 | 17.7864 | 2.3568 | 2.3582 | -0.06 |
| | Smartsolv 605 | 15.8378 | 18.0651 | 17.2678 | 2.2273 | 1.4300 | 35.80 |

SC Maxisolv, Dimethyl glutarate, and SmartSolv 605 showed visual removal and change in cleaner color at 5min, 15min, 30min, and 1 hour, and increased in effectiveness with additional immersion time. The remaining cleaners showed some swelling (such as Ozzy Juice SW 3 shown in attached images), which could be contributed to the contaminant absorbing the cleaner, additionally no major removal visually or change in cleaner color were observed.

Summary:

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Conclusion: The subsequent testing will include the introduction of heat and agitation in the form of ultrasonics, to further investigate the effectiveness of these evaluated cleaners.