

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 03/04/2020

Experimenters: Sabrina Apel, Tuan Le

ClientType:

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Blood

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate effectiveness of the provided cleaners in regards to removing synthetic blood from stainless steel.

Experimental Procedure: Three pre-weighed stainless-steel coupons per cleaner were coated with synthetic blood using a swab and allowed to air dry (68 F) for 24 hours. Dirty weights were recorded before immersing coupons into the six cleaners provided by the company at the recommended temperature for three minutes. Coupons were rinsed three times in a de-ionized water bath for one minute and dried for 24 hours before recording the final weights.

Results:

Table of Gravimetric Results

| Cleaner | Temperature (°F) | Initial wt of cont. | Final wt of cont. | %Cont Removed | % Average |
|---------|-----------------------|---------------------|-------------------|---------------|-----------|
| CMA | 140 | 0.0082 | 0.0001 | 98.78 | 89.44 |
| | | 0.0558 | 0.0085 | 84.77 | |
| | | 0.0532 | 0.0081 | 84.77 | |
| CMB | 140 | 0.0420 | 0.0080 | 80.95 | 91.93 |
| | | 0.0530 | 0.0001 | 99.81 | |
| | | 0.0282 | 0.0014 | 95.04 | |
| CMC | 140 | 0.0144 | 0.0006 | 95.83 | 97.77 |
| | | 0.0358 | 0.0004 | 98.88 | |
| | | 0.0498 | 0.0007 | 98.59 | |
| CMD | 68 (Room Temperature) | 0.0871 | 0.0015 | 98.28 | 99.24 |
| | | 0.0562 | 0.0001 | 99.82 | |
| | | 0.1044 | 0.0004 | 99.62 | |
| CME | 68 (Room Temperature) | 0.0868 | 0.0000 | 100.00 | 98.93 |
| | | 0.0621 | 0.0017 | 97.26 | |
| | | 0.1700 | 0.0008 | 99.53 | |

Coupons that were cleaned using the CMD cleaner:

Summary:

| | | | | | | |
|----------------------|----------------------|-----------------|--------------------|-------------------------------------|----------------------|--|
| Substrates: | | Stainless Steel | | | | |
| Contaminants: | | Blood | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Case Medical Inc. | CMA | 0.08 | 89.44 | <input checked="" type="checkbox"/> | | |
| Case Medical Inc. | CMB | 0.08 | 91.93 | <input checked="" type="checkbox"/> | | |
| Case Medical Inc. | CMC | 0.4 | 97.77 | <input checked="" type="checkbox"/> | | |
| Case Medical Inc. | CMD | 100 | 99.24 | <input checked="" type="checkbox"/> | | |
| Case Medical Inc. | CME | 100 | 98.93 | <input checked="" type="checkbox"/> | | |

Conclusion:

All cleaners were effective in removing synthetic blood from stainless steel coupons. The cleaner, CMD, was most effective with an overall average removal of 99%. The results were confirmed with visual observations.