

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003
 DateRun: 09/22/2003
 Experimenters: Jason Marshall
 ClientType: Tool Manufacturer
 ProjectNumber: Project #1
 Substrates: Steel
 PartType: Coupon
 Contaminants: Paints
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: Reevaluate top three cleaners on supplied varnish.

Experimental Procedure: Three cleaners from the previous trial were selected based on varnish removal. All three cleaners were used at full strength in 250 ml beakers using immersion cleaning only. Cleaning lasted for 20 minutes and was followed by a 30 second air blow off at room temperature. Additionally, one product, AW Chesterton was also used at 120 F for 10 minutes. Twelve preweighed coupons were coated with the varnish mix and allowed to dry. Coupons were weighed again to determine the amount of paint applied to the coupons. Three coupons were cleaned in each solution. After the air blow off, final weights were recorded and cleaning efficiencies were calculated.

Contaminant: Varnish Mix - Cooper's Creek Chemicals, Cooper Black Tank Paint No 739 (64742-89-8, 8052-42-4, 108-88-3); Sherwin Williams Company, V74B2 Black Asphaltum coating (64742-89-8, 64742-88-7, 8052-42-4).

Results: The 278 Super Solv removed nearly all of the varnish in either method. The AK 225 had some improvement over the 10 minute cleaning times, increasing from 60% to 80%. The last cleaner had no improvement. The table below lists the amount of soil added, the amount removed and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|--------------------------|------------|----------|-----------|
| 278 Super Solv Heated | 0.0713 | 0.0019 | 97.34 |
| | 0.0305 | 0.0009 | 97.05 |
| | 0.0418 | 0.0018 | 95.69 |
| D Greeze 1000 20 minutes | 0.0580 | 0.0234 | 59.66 |
| | 0.0541 | 0.0252 | 53.42 |
| | 0.0486 | 0.0124 | 74.49 |
| AK 225 20 min | 0.0468 | 0.0010 | 97.86 |
| | 0.0989 | 0.0371 | 62.49 |
| | 0.0794 | 0.0138 | 82.62 |
| 278 Super Solv 20 min | 0.0696 | 0.0030 | 95.69 |
| | 0.0804 | 0.0074 | 90.80 |
| | 0.0408 | 0.0013 | 96.81 |

Summary:

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|------------------------|----------------------|---------------|--------------------|-------------------------------------|-------------------------|
| Substrates: | | Steel | | | |
| Contaminants: | | Paints | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| AW Chesterton | 278 Super Solv | 100 | 96.69 | <input checked="" type="checkbox"/> | 10 minutes, heated |
| Transene Company, Inc. | D Greeze 1000 | 100 | 62.52 | <input type="checkbox"/> | |
| AGA Chemical | AK 225 | 100 | 80.99 | <input type="checkbox"/> | |
| AW Chesterton | 278 Super Solv | 100 | 94.43 | <input checked="" type="checkbox"/> | 20 minutes at room temp |

Conclusion: Both methodologies used with 278 Super Solv were effective in removing over 94% of the varnish from the coupons.