

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 12/05/2000

Experimenters: Jason Marshall, John Brunelle

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Adhesive, Coatings, Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Resins/Rosins, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To compare the old product with the newly formulated product.

Experimental Procedure: The two products supplied by the client were diluted to 5% using DI water in 600 ml beakers. The dilutions were heated to 140 F on a hot plate. Three coupons soiled with the same contaminant were cleaned for 5 minutes using stir-bar agitation. Coupons were rinsed with tap water at 120 F for 30 seconds and dried overnight at room temperature.

SUBSTRATE MATERIAL: Aluminum coupons as listed in Table 1.

Table 1. Substrates Used

Substrate ID#

AL1 1100 H-14

AL2 6061 T-4

AL3 5052 H-32

CONTAMINANTS: Resin, grease, oil, coating and lubricant as listed in Table 2.

Table 2. Contaminants CAS#

AD, Ashland Acrylic Resin 108-88-3, 141-78-6, 142-42-5, 67-63-0

OI, Hydraulic, East Falls Co. 64742-65-0

GR, KSL-111 64742-47-8

CO, Tectyl, Rust Preventative 8052-41-3

LU, Fluorocarbon release 79070-11-4

Results: The new formulation of Sea Wash 8 had better cleaning efficiency than the old for the oil, the grease and the lubricant. Even though the grease removal for SW 8 New was over 100%, the value in excess of 100% was due to SW8 New removing the thin layer of residual contaminant present on the coupon prior to the cleaning trial. A subsequent corrosion test suggested that SW 8 New did not cause significant damage to aluminum (~0.0055% weight loss over 4 days). The adhesive values for both versions were negative. This type of result can be associated with the cleaning solution being soaked up by the contaminant during the cleaning process which would lead to eventual cleaning of the contaminant. Sea Wash 8 old was only better at removing the coating, but both were less than 30% removal. The efficiencies for both formulations are listed in Table 3.

Table 3. Old vs New

Contaminant	Old SW8	New SW8
adhesive	-3.40	-11.77
oil	95.58	98.79
grease	87.11	125.71
coating	29.78	7.47
lubricant	5.93	94.95

Summary:

Substrates:		Aluminum			
Contaminants:		Adhesive, Coatings, Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Resins/Rosins, Oil			
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Warren Chemical Company	Sea Wash 8 No Force	5	-3.39	<input type="checkbox"/>	adhesive-resin
Warren Chemical Company	Sea Wash 8 No Force	5	95.58	<input checked="" type="checkbox"/>	oil
Warren Chemical Company	Sea Wash 8 No Force	5	87.11	<input checked="" type="checkbox"/>	grease
Warren Chemical Company	Sea Wash 8 No Force	5	29.78	<input type="checkbox"/>	coating
Warren Chemical Company	Sea Wash 8 No Force	5	5.93	<input type="checkbox"/>	lubricant

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Warren Chemical Company	Sea Wash 8	5	-11.77	<input type="checkbox"/>	adhesive-resin
Warren Chemical Company	Sea Wash 8	5	98.79	<input checked="" type="checkbox"/>	oil
Warren Chemical Company	Sea Wash 8	5	125.70	<input type="checkbox"/>	grease
Warren Chemical Company	Sea Wash 8	5	7.47	<input type="checkbox"/>	coating
Warren Chemical Company	Sea Wash 8	5	94.95	<input checked="" type="checkbox"/>	lubricant

Conclusion: The new version of Sea Wash 8 out performed the existing version in 5 of the 6 contaminants.