CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2026

DateRun: 11/02/2026

Experimenters: Amelia Wagner, Evan Hebert

ClientType: Lab

ProjectNumber: Project #17

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Xray fluoresence

Purpose: To determine the efficacy of modified alcohol Metalnox M6386 chemistry in removing various industrial soils without the assistance of vacuum vapor degreasing equipment.

Experimental Procedure: Three Aluminum coupons were assigned to each of 6 industrial soils; Blastocut BC 35 NF, Molykote III compound, Aeroshell 33 Grease, Phillips 66 Multiplex FS220 #2 Grease, Mobil SHC Grease, and Texaco Rando HD 46 Grease. Each coupon was weighed using a gravimetric balance and had their initial weights recorded. Each coupon was then soiled with a pea sized amount of the appropriate soil using a swab to spread it across the surface of the coupons. Each coupon was weighed again and had their dirty weights recorded. The coupons were then immersed in a beaker of the Metalnox M6386 modified alcohol with a stir bar set to 200rpm for 10 minutes. Upon removal from the beaker, the coupons were allowed to air dry for 1 hour minutes before being weighed and having their final weights recorded.

Analysis:

The recorded reflectance values of each coupon were used within an equation to generate a percentage representative of how close the clean reflectance value is to the initial reflectance value. It estimates how closely the coupons were returned to their original state after vacuum vapor degreasing. The equation is as follows

$\%=(R_{clean}-R_{dirty}/R_{initial}-R_{dirty})X100$

Results:

Soil	Initial RFU	Dirty RFU	Clean RFU	%DET	AVG
Blastocut BC35 NF	45.7	1548.9	87.4	97.23	94.59
	78.3	775.8	94.6	97.66	
	127.9	942.8	218.4	88.89	
Molykote III compound	80.6	369.2	280.9	30.60	22.18
	50.9	167.1	156.1	9.47	
	71.7	240.5	195.8	26.48	
Aeroshell 33 Grease	95.4	236.5	119.6	82.85	47.02
	2.5	226.8	156.7	31.25	
	1.8	225.1	164.9	26.60	
Phillips 66 Multiplex FS220 #2 Grease	4.5	2797.1	2470	11.71	6.91
	9.3	2795.8	2759	1.32	
	8.6	2791.5	2577.6	7.69	
Mobil SHC Grease	63.2	1916.6	549.5	73.76	60.34
	33.9	1728.7	812.8	54.04	
	28.9	1469.4	702.7	53.22	
Texaco Rando HD 46 Grease	78.9	502.1	58.8	104.7	91.17
	43.3	714.6	119.1	88.71	
	221.7	1797.9	536.3	80.04	

Summary:

Conclusion: Metalnox M6386 was successful in removing the Blastocut BC35 NF, and Texaco Rando HD 46 Grease from aluminum. It was not successful in removing Molykote III compound, Aeroshell 33 Grease, Phillips 66 Multiplex FS220 #2 Grease, or Mobil SHC Grease.