CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 03/01/2020

Experimenters:

ClientType: Metal Finishing

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To determine the effectiveness of aqueous cleaners in removing Vanishing Oil provided by the company from TURI stainless steel coupons.

Experimental Procedure: Five sets of three steel coupons were soiled with vanishing oil provided by the company and were immersed into five distinct beakers containing Micro 90, Aquavantage 1400 GD, Alconox, SC-1000, and Sta-Sol ESS 160 respectively. Heated ultrasonics at 122-125°F for 15 minutes was used to clean the coupons. At 5-minute intervals, observations about the state of cleanliness were noted. Aqueous cleaners, cleaners 1-4, received an additional water bath in deionized water for 5 minutes. Coupons were dried with an air gun for 5 minutes. Effectiveness of cleaning was observed visually and gravimetrically following the drying step.

Results: After 15 minutes of heated ultrasonics and subsequent post treatment, the vanishing oil was removed from all coupons.

Summary:

Substrates:	Stainless Steel
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
International Products Corporation	Micro 90 Conc.	2%	120.00	☑	
Brulin Corporation	Aquavantage 1400	5%	109.00	☑	
Alconox Inc	Alconox	2g/ 200mL	133.00	☑	
Gemtek Products	SC 1000 Aqueous Cleaner Concentrate	20%	107.00	☑	
JR Hess & Co., Inc.	Sta-Sol ESS 160	100%	116.00	☑	

Conclusion: Based on visual and gravimetric analysis, all cleaners removed the vanishing oil, but SC-1000 was the most effective cleaner for removing the vanishing oil from the stainless-steel coupons. It should be noted that clean weights still are consistently less than initial weights for all coupons. This is due to the TURI coupons having potential contaminants left behind from previous tests. Compared to company steel coupon tests, the average percent of contaminants removed is significantly less. Manufacturers of each cleaner have been contacted to determine if cleaners are compatible with galvanized steel coupons.