CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 08/19/2020

Experimenters: Justin Kiander

ClientType: Metal Finishing

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: The purpose of this experiment was to determine the effectiveness of four selected cleaners in removing Vanishing Oil from TURI steel coupons using unheated immersion.

Experimental Procedure: Pre-weighed steel coupons were contaminated with the vanishing oil provided by the client and placed on the bottom third of each coupon. Dirty weights were recorded before immersing the coupons, three per cleaner, for 15 minutes at room temperature. After 15 minutes, coupons were dried using the air gun and final weights were taken.

Results:

Cleaner	Initial wt. of cont.	Final wt. of cont.	% Cont. Removed	%AVG
Liquinox	0.0154	0.0024	84.42	81.67
	0.0094	0.0017	81.91	
	0.0061	0.0013	78.69	
Surface Cleanse 930	0.0146	0.0014	90.41	89.95
	0.0186	0.0015	91.93	
	0.0128	0.0016	87.5	
Sta Sol ESS 160	0.0126	0.001	92.06	98.96
	0.0109	-0.0007	106.42	
	0.0062	0.0001	98.39	
Smart Solve 605	0.0107	0.0015	85.98	63.67
	0.0105	0.0037	64.76	
	0.0072	0.0043	40.28	

Summary:

Substrates:	Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Liquinox	1%	81.67	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5%	89.95	☑	
JR Hess & Co., Inc.	Sta-Sol ESS 160	100%	98.96	☑	
United Laboratories International	Smart Solve 605	100%	63.67	☐	There was still residue present after the 24 hour air dry time. Weights were taken with the residue present and after a wipe step to remove the residue. There was not a significant difference in weight after the wipe, so weights without the residue were used in calculations.

Conclusion: Sta Sol ESS 160 was the most effective cleaner removing an average of 98.96% of soil from steel coupons. Surface Cleanse 930 was the second most effective removing an average of 89.95%, however, vendor alerted the lab to not use 5% going forward. Any further testing will need to be at 2% or less.