CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 09/13/2020

Experimenters: Zoe Lawson, 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 confirm removal results from Trial #8.

Experimental Procedure: Three general steel TURI coupons were obtained for each of the four cleaners tested. The cleaners were prepared to the following conditions: Metalnox 6386 100% concentration room temperature, Mirachem 500 20% concentration 110°F, SC Aircraft & Metal Cleaner 20% concentration 130°F, and Shopmaster LPH 20% concentration 130°F. An initial weight was recorded for each coupon, then coupons were soiled with the Vanishing Oil provided by the company. A soiled weight was recorded and coupons were then submerged into their respective cleaners for 15 minutes. After 15 minutes had passed, cleaners were submerged into a deionized water bath at 115°F for 20 seconds. Coupons were then dried using the hot air gun and a cleaned weight was obtained. Effectiveness of cleaners was then determined.

Results:

Cleaner	Initial wt of cont	Final wt of cont	%Cont Removed	%AVG
Metalnox 6386	0.0364	0.0032	91.21	92.87
	0.0418	0.0059	85.89	
	0.0663	-0.0010	101.51	
Mirachem 500	0.0612	0.0018	97.06	100.85
	0.0526	-0.0015	102.85	
	0.0265	-0.0007	102.64	
SC Aircraft & Metal Cleaner	0.0315	-0.0001	100.32	78.5
	0.0232	-0.0006	102.57	
	0.0046	0.0031	32.61	
Shopmaster LPH	0.0091	-0.0017	118.68	106.71
	0.0400	-0.0028	107.00	
	0.0289	0.0016	94.46	

Summary:

Substrates:	Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Kyzen Corporation	Metalnox M6386	100%	92.87	☑	
Mirachem Corporation	Mirachem 500	20%	100.85	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20%	78.50	☐	
Buckeye International	Shopmaster LPH	20%	106.71	☑	

Conclusion: Shopmaster LPH was the most effective cleaner removing an average of 106.71% of soil from the steel coupons. Mirachem 500 was the second most effective removing an average of 100.85%, and Metalnox 6386 was the third most effective removing an average of 92.87. The next steps would be to test on company steel coupons.