CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 12/14/2023

Experimenters: Alexander Symko, Amelia Wagner

ClientType: Lab

ProjectNumber: Project #6

Substrates: Copper, Stainless Steel

PartType: Coupon

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

Cleaning Methods:

Analytical Methods: Gravimetric

Purpose: To determine the efficacy of aqueous cleaners utilizing VCN equipment.

Experimental Procedure: Three pre weighed stainless steel screws and three pre weighed copper intricate parts were used for each soil per cleaner for a total of twelve coupons. The coupons were soiled by swabbing the correct soil, either Mobil DTE oil or Strawmann Cutting oil, over the whole screw/par.t The dirty weights of the coupons were then recorded. The coupons were then subjected to a one-minute heated cycle at 140 degrees F in the VCN using Aquavantage 1400 GD 1% concentration. The coupons were then removed and left to air dry overnight. The next day the clean weights of the coupons were recorded.

Results:

Soil	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
Mobil DTE Oil	Copper	0.0095	0.0083	12.63	33.02	47.78
		0.0381	0.0362	4.99		
		0.0248	0.0046	81.45		
	Stainless Steel	0.0079	0.0055	30.3797	62.53	
		0.0389	0.0039	89.9743		
		0.0235	0.0077	67.2340		
Strawmann Cutting Oil	Copper	0.5459	0.0032	99.4138	95.28	96.51
		0.6773	0.0920	86.4192		
		0.5883	0.0000	100.0000		
	Stainless Steel	0.2687	0.0154	94.2687	97.74	
		1.0053	-0.0104	101.0345		
		0.5640	0.0118	97.9078		

There are several outliers within the coupons soiled with Mobil DTE oil. These will need to be retested.

Summary:

Substrates:	Copper, Stainless Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	1%	96.51	☑	

Conclusion: Aquavantage 1400 GD 1% utilizing VCN technology was not effective in removing Mobil DTE Oil from either Copper intricate parts or Stainless Steel screws. However future testing is needed to determine the actual efficacy, as there are several outliers. Aquavantage 1400 GD 1% utilizing VCN technology was very effective in removing the Strawmann Cutting Oil from both Copper intricate parts and Stainless Steel screws.