CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 02/28/2016

Experimenters: Abigail Giarrosso, Catherine York, Sabrina Apel

ClientType: General

ProjectNumber: Project #1

Substrates: Aluminum, Brass, Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To eliminate the use of N-Propyl Bromide in cleaning opereations

Experimental Procedure: To evaluate possible immersion cleaning process for Brookfield compared to other cleaning solutions.

Four cleaners were tested at room temperature on aluminum, brass, and stainless-steel coupons to evaluate how the soil, Castrol Performance Bio NC Lite, was cleaned. Preweighed coupons were coated with the supplied Castrol soil using a hand held swab and weighed a second time to determine the amount of soil added. Each cleaner was put in a beaker and three coupons were immersed into the solution for 5 minutes. The coupons were then stood upright to air dry for 15 minutes at room temperature and then placed on a tray. There was no rinse. Once dry, final weights were recorded and efficiency calculated for each coupon cleaned.

Results:

Cleaner	Substrate	Initial Wt.	Final Wt.	% Removed
Fluosolv CX	Aluminum	21.5088	21.5121	99.37
	Aluminum	21.0991	21.1016	99.5
	Aluminum	21.6899	21.6924	99.5
	Brass	49.5352	49.5355	99.94
	Brass	49.5439	49.5463	99.52
	Brass	49.4807	49.4905	98.07
	Stainless	63.8349	63.8485	97.3
	Stainless	63.8935	63.8966	99.39
	Stainless	63.8727	63.8992	95.01
Fluosolv NC	Aluminum	21.2000	21.2112	97.85
	Aluminum	21.0624	21.0977	93.12
	Aluminum	21.1745	21.1805	98.73
	Brass	69.6143	69.6488	93.4
	Brass	69.5401	69.6105	85.39
	Brass	69.4532	69.4787	95.11
	Stainless	60.0318	60.0735	92.06
	Stainless	59.5635	59.5803	96.53
	Stainless	63.9047	63.9308	94.98
Honeywell PF	Aluminum	21.6222	21.6260	99.18
	Aluminum	21.5856	21.5913	98.91
	Aluminum	21.5780	21.5831	98.98
	Brass	69.4477	69.4621	97.08
	Brass	69.5313	69.5440	97.63
	Brass	69.4393	69.4414	99.58
	Stainless	60.4416	60.4543	97.52
	Stainless	59.4622	59.4645	99.54
	Stainless	59.5306	59.5357	99.00
Honeywell PF-2A	Aluminum	21.5384	21.5388	99.92
	Aluminum	21.4851	21.4880	99.40
	Aluminum	21.6383	21.6383	100.00

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	Brass	49.5361	49.5536	96.48
	Brass	49.4182	49.4206	99.52
	Brass	69.3318	69.3511	96.22
	Stainless	60.1052	60.1124	98.61
	Stainless	58.9597	58.9599	99.96
	Stainless	59.1281	59.1281	100.00

Summary:

Substrates:	Aluminum, Brass, Stainless Steel
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Honeywell	Solstice PF-2A with N2	100	98.90	☑	
Honeywell	Solstice PF with N2	100	98.59	☑	
NuGeneration Technologies, LLC	FluoSolv CX	100	98.62	☑	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	94.13	☑	

Conclusion:

All four cleaners efficiently removed the Castrol soil on all three substrates at room temperature. The least efficient cleaner used was Fluosolv NC, with the lowest cleaning average on the brass substrate. The Fluosolv NC was still an efficient cleaner with a 94.13% efficiency, but less efficient than the other cleaners used. The most efficient cleaner would be Solstice 2A from Honeywell which had an efficiency of 98.90%.