CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 02/10/2021

Experimenters: Nicole Kebler

ClientType: Cleaning Equipment Mfr

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Greases, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To use the Industrial GS 34 cleaning method to test TorqLube Ruff-Stuff for the removal of maintenance soil and production oil from stainless steel.

Experimental Procedure: A 10% solution of TorqLube Ruff-Stuff was made prior to the testing. Three stainless steel coupons were used for each soil and both soils had a control coupon that was not dirtied. They were weighed for initial weights. About 0.15g of maintenance soil (which had been previously made using 10 grams of carbon black, 10 grams iron oxide, 100 ml WD-40, 100 ml hydraulic oil, and 100 ml gear oi) was added to three coupons. These coupons were put in the oven at 105 degrees Fahrenheit for 30 minutes with the control coupon. Next, About 0.15 g of production soil (which also had been previously made using 200 ml Quench Oil and 200 ml cutting oil) was put on the coupons. These coupons were put in the oven at 220 degrees Fahrenheit for 30 minutes with a control coupon. Once cooled off to room temp, 4 beakers were filled halfway with the 10% Ruff-Stuff and heated to 105 degrees Fahrenheit and placed in a warming bath that kept the cleaners at the right temp. The three coupons coated in maintenance soil were placed in 1 beaker, the control in another, then three coupons with production oil in another beaker and the control in another. All coupons were left for a 30 minute immersion soak. Once the 30 minutes was up, the coupons went into a 20 minute distilled water bath. They were taken out and held for 20 seconds, and then placed into another bath. Both soils and control coupons were kept separate and in different baths. Once the second bath was done, the coupons were put back into the oven at 220 degrees Fahrenheit for 30 minutes. They were then left to dry and once fully dried, final weights were recorded.

Soils Used:

1. *Maintenance Soil*
2. *Production Oil*

Results: TorqLube Ruff-Stuff was effective for the removal of production oil but not maintenance soil on stainless steel substrates. It averaged at 100% removal for production oil, one observation being slightly over at 100.91% but this could be due to minor residual soil still left on the coupon initially. It only averaged 30% removal of maintenance soil and ranged from 40% to 20%, visually there was a lot of soil left on the coupons after washing and baking. There appears to be no mass lost on the controls and both changed by <0.001 g and had 99.998% mass remaining.

Soil	Initial wt. of cont.	Final wt. of cont.	%cont. removal	Average
1	0.1416	0.0815	42.44	29.87
	0.1561	0.1241	20.50	
	0.1347	0.0988	26.65	
2	0.1540	-0.0014	100.91	100.22
	0.1169	0.0003	99.74	
	0.1166	0.0000	100.00	

Controls

Soil	Initial	Clean	Difference	% Remaining
1	60.0897	60.0906	0.0009	99.99
2	60.0883	60.0894	0.0011	99.99

Summary:

Substrates:	Stainless Steel				
Contaminants:	Greases, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
		10%	100.00		

CLEANING LABORATORY EVALUATION SUMMARY

Torq Lubricants	Ruff-Stuff Waterbased Degreaser			☐	TorqLube Ruff-Stuff was only effective for the removal of Production Oil and not effective for Maintenance Soil on Stainless Steel.

Conclusion: TorqLube Ruff-Stuff was effective for the removal of production oil on stainless steel but was not effective for the removal of maintenance soil.