CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 12/05/2021

Experimenters: Nicole Kebler

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Carbon Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, Visual

Purpose: To test Crystal Simple Green at a 1:15 concentration at 140 F for the removal of oil from stainless steel coupons.

Experimental Procedure: The cleaners were put into beakers and heated to 140 F in the ultrasonics tank. The coupons were weighed for dirty weights and once the cleaners were at the correct temperatures, the coupons were put into the beakers. The ultrasonics tank was turned on and ran for 15 minutes. The coupons were taken out and left to dry fully. Once dry, the clean weights were taken. The coupons were cleaned again till all remaining oil was removed from the coupons and the initial weights were taken. The ultrasonics tank was run at 40 KHz.

The coupons were all tested in the same solution to make sure soil loading wasn't an issue.

Results: This method was tested on six coupons and all six coupons had a removal of 90% or more. The first coupon was the lowest at 92% removal and the last coupon was the highest at 97% removal. Visually all the coupons were clean with minimal to no spotting. Pictures were sent to the company for their input on the first coupon.

Cleaner	Initial wt. of cont.	Final wt. of cont.	Average
Simple Green 1:15	0.2471	0.0204	91.74
	0.1238	0.0031	97.50
	0.1748	0.0043	97.54
	0.2665	0.0040	98.50
	0.2219	0.0080	96.39
	0.1942	0.0044	97.73

Summary:

Substrates:	Carbon Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	1:15	97.00	☑	Crystal Simple Green was effective at removing oil from stainless steel.

Conclusion: Crystal Simple Green 1:15 at 140 F is a potential alternative and visually removes all the soil from the stainless-steel coupons. Next steps would be to have the company test on parts. Additional next steps are to continue testing Mirachem 500 and other cleaners to find additional alternative choices.