CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2022

DateRun: 01/24/2022

Experimenters: Nicole Kebler

ClientType: Brass Instrument Manufacturer

ProjectNumber: Project #1

Substrates: Brass

PartType: Part

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate the removal of oil from brass pieces provided by the company using industrial degreasers.

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

Results: The Metalnox 6435 that works for the removal of buffing compound did not remove the oil from the parts and had an average of 56% and 12% for the two parts tested. Crystal Simple Green was not compatible with brass and removed the protective coating around the part making it dark and changing its appearance. The removal for one part was over 500% and the other part was over 100%, indicating more weight was removed than originally weighed in the initial weights. Surface Cleanse, Liquinox, and Shopmaster LPH all did well and both parts for all cleaners had over a 99% removal effectiveness. Visually the parts were clean and had a shine to them. Citranox visually did as well, but one part gravimetrically was around 76% removal and the other around 94% removal. The lower score could have been a gravimetric error; Citranox seemed to do just as well as the other three cleaners.

Cleaner	Concentration	Initial wt. of cont.	Final wt. of cont.	Average
Metalnox 6435	100%	0.0268	0.0119	55.60
		0.0372	0.0327	12.10
Crystal Simple Green	1:15	0.0080	-0.0341	526.25
		0.0757	-0.0032	104.23
Surface Cleanse	2%	0.1496	0.0003	99.80
		0.1508	0.0002	99.87
Liquinox	2%	0.1352	0.0005	99.63
		0.1458	0.0001	99.93
Shopmaster LPH	10%	0.1831	0.0014	99.24
		0.0957	0.0002	99.79
Citranox	2%	0.1347	0.0318	76.39
		0.1203	0.0072	94.01

Summary:

Substrates:	Brass
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	1:15	0.00	☐	Crystal Simple Green was not effective and was not compatible with brass substrate.
International Products Corporation	Surface Cleanse Concentrated Neutral 930	2%	99.00	☑	Surface Cleanse 930 was effective at removing oil from brass substrate.
Alconox Inc	Liquinox	2%	99.00	☑	Liquinox was effective at removing oil from brass substrate.
	Shopmaster LPH	10%	99.00	☑	

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Buckeye International					Shopmaster LPH was effective at removing oil from brass substrate.
Alconox Inc	Citranox	2%	94.00	☑	Citranox was effective at removing oil from brass substrate.

Conclusion: Surface Cleanse 930, Liquinox and Shopmaster LPH all performed well with over 99% removal and visually were spotless. Citranox also did well but had a lower gravimetric score for one of the parts. Metalnox 6435 did not remove oil from the parts and Crystal Simple Green removed the protective coating and changed the color of the part. Next steps would be to have company input and to do in house testing on company parts.