CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2020
DateRun:	11/29/2020
Experimenters:	Justin Kiander
ClientType:	Metal Working
ProjectNumber:	Project #1
Substrates:	Aluminum, Brass
PartType:	Part
Contaminants:	Buffing/Polishing Compounds
Cleaning Methods:	Ultrasonics
Analytical Methods:	Visual
Purpose:	The purpose of this experiment was to determine the effectiveness of cleaners on all remaining parts in the lab provided by the company.
Experimental Procedure:	Cleaners were prepared to the following concentrations: Metalnox 6386 100% and SC Aircraft & Metal Cleaner 30%. One substrate of the following parts was obtained for each of the cleaners: Mirror Polish Lacquer, Satin (Grained & Wax), Paint Prep, Brass Mirror Polish. All parts were pre-soiled by the company. Cleaning solutions were heated to 120°F and added to an ultrasonic bath also at 120°F. Once solutions reached the proper temperature, parts were individually submerged into their respective cleaners for 15 minutes. After cleaning, all parts tested with SC Aircraft were submerged into a deionized water bath at 120°F for 30 seconds. All parts were then dried with a heat gun. Effectiveness of cleaning was determined.

Results:

Cleaner	Part	Observations
Metalnox 6386	Mirror Polish Lacquer	Pre: Buffing compound present along edges and back Post Clean: Buffing compound observed around edges Post Dry: Appears clean, some marking which could be residual coating at top of part. Edges still have buffing compound (could also be not "blasted")
	Satin (Grained & Wax)	Pre: Crystalline deposit at center Post Clean: Crystalline substance removed; no visual damage Post Dry: Appears clean with all crystalline removed
	Paint Prep	Pre: Very similar to blasted edge parts tested previously except silver Post Clean: Appears visually clean, dried very quickly (within seconds) Post Dry: Appears clean with no visual damage
	Mirror Polish Brass	Pre: Observable coating film on front of part Post Clean: Appears clean some marking or residual coating present Post Dry: Appears clean with some markings.

CLEANING LABORATORY EVALUATION SUMMARY

		Markings look as though they were caused from production and not damage from cleaning.
SC Aircraft & Metal	Mirror Polish Lacquer	Pre: Buffing compound along edges and back Post Clean: Some residual coating remained on front surface of substrates. White film developed after rinse step which disappeared with heating. Post Dry: Residual coating remains on parts, edges still have buffing compound (could be due to not being "blasted")
	Satin (Grained & Wax)	Pre: Crystalline deposit at center of substrate Post Clean: All crystalline substance removed, minor scratch at top of substrate most likely from tweezers Post Dry: Appears clean with a slight scratch most likely from tweezers when moving substrate
	Paint Prep	Pre: Similar to blasted edge previously tested only silver Post Clean: Appears visually clean, dried very quickly Post Dry: Appears clean with no visual damge
	Mirror Polish Brass	Pre: Coating visibly present on the front surface of the substrate Post Clean: Tweezers cause slight damage to top of substrate, no other markings. Post Dry: Some residual patches of coating, scratching at top of substrate due to tweezers.

Overall, Metalnox and SC Aircraft were most effective for Satin and Paint Prep parts. Some residual coatings and/or markings were observed on Lacquer and Brass Mirror Polished Parts. Parts will be sent to company to review and verify effectiveness of cleaner performance. Note that Lacquer parts had been at laboratory for an extended amount of time. The aging of the soil could have impacted overall cleaner performance.

Summary:

Substrates:	Aluminum, Brass
Contaminants:	Buffing/Polishing Compounds

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Kyzen Corporation	Metalnox M6386	100%	0.00	☑	Most effective for Satin and Paint Prep samples. Company verification required for Brass and Lacquer Mirror Polished Parts.
Gemtek Products		30%	0.00	☑	Most effective for Satin and Paint Prep samples. Company verification

CLEANING LABORATORY EVALUATION SUMMARY

	SC Aircraft & Metal Cleaner Super Concentrate				required for Brass and Lacquer Mirror Polished Parts.

Conclusion: Upon completion of testing, it was determined that both Metalnox and SC Aircraft are effective for Satin and Paint Prep parts. Verification by the company will be required to determine if performance is acceptable for Brass and Lacquer Mirror Polished Parts. Should company approve of overall performance and require no further parts testing, next steps would be to work with company towards implementation.