CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 10/26/2020

Experimenters: Justin Kiander

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Part

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: The purpose of this experiment was to determine the effectiveness of remaining cleaners on aluminum mirror polish parts provided by the company.

Experimental Procedure: Four cleaners were prepared to the following concentrations: Metalnox 6386 100%, Emerald ICP 1 5%, SC Aircraft & Metal Cleaner 20%, Mirachem 500 20%. One aluminum mirror polish part pre-soiled with buffing compound was obtained for each of the cleaners being tested. Photos of the substrates were taken before cleaning as well as a white glove test to verify the amount of soil present. Solutions were heated to 120°F. Once solutions reached this temperature, parts were submerged into their respective cleaners and heated immersion was conducted for 15 minutes. After the 15 minutes, coupons were dried in air for 24 hours. Once dry, observations of the cleaning were recorded, post treatment photos were taken, and another white glove test was conducted to verify the removal of the soil.

Results:

Cleaner	Observations
Metalnox 6386	Excellent visual removal, no damage to mirror polish, some buffing compound remains on backside. White glove: buffing remains on edges need ultrasonics
Emerald ICP 1	Damaged material surface- discontinue testing
SC Aircraft & Metal	Minor discoloration, a rinse step could help to eliminate this. White glove: some buffing remains on edges need ultrasonics
Mirachem 500	Damaged material surface- discontinue testing

Summary:

Substrates:	Aluminum				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Kyzen Corporation	Metalnox M6386	100%	0.00	☑	Some buffing compound remained, need ultrasonics
Hubbard Hall Inc	Emerald IC P 1	5%	0.00	☐	Damaged material surface
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20%	0.00	☑	Some buffing soil remained, need ultrasonics
Mirachem Corporation	Mirachem 500	20%	0.00	☐	Damaged material surface

Conclusion: Metalnox 6396 and SC Aircraft & Metal cleaner proved to be the most effective cleaners for removing the buffing compound from aluminum mirror polish parts via heated immersion. Emerald ICP 1 and Mirachem 500 caused visual damage to the substrates and testing with these cleaners will be discontinued. Next steps would be to conduct heated ultrasonics with Metalnox and SC Aircraft to improve soil removal.