CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2021
DateRun:	02/24/2021
Experimenters:	Zoe Lawson, Justin Kiander
ClientType:	Precision Instrument Manufacturer
ProjectNumber:	Project #1
Substrates:	Copper
PartType:	Part
Contaminants:	Oil
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric, Visual
Purpose:	The purpose of this experiment was to determine the effectiveness of cleaners in removing penetrant oil from copper substrate parts provided by the company.
Experimental Procedure:	Cleaners were prepared to the following concentrations: Metalnox 6386 100%, Water Works Heavy Duty Degreaser 7:1. Solutions and an ultrasonic bath were heated to 100°F. Three BeCu parts provided by the company were obtained and weighed. Parts were then soiled with the penetrant oil spray and a dirty weight was recorded. Once solutions reached the proper temperature, parts were submerged into their respective cleaners and ultrasonic cleaning was conducted for 15 minutes. After 15 minutes, parts were dried with a heat gun at ambient setting to remove all solution. Following the drying process, parts were weighed again and a clean weight was recorded. Effectiveness of the cleaners was then determined.

Results:

Cleaner	Initial wt of cont	Final wt of cont	%Cont Removed	%AVG
Metalnox 6386	0.0827	0.0018	97.82	98.37%
	0.1397	0.0028	98.00	
	0.1391	0.0010	99.28	
Water Works	0.1204	0.0011	99.09	99.17%
	0.1714	0.0014	99.18	
	0.1849	0.0014	99.24	

Both cleaners were successful at removing the penetrant oil spray from BeCu substrates. Solutions did not experience as noticeable of a color change as in the penetrant oil trial with steel parts. However, all oil was visibly removed following the cleaning process. Next steps would be to test the effectiveness of cleaners removing aviation grease from the BeCu substrates.

Summary:

Substrates:	Copper				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Kyzen Corporation	Metalnox M6386	100%	98.37	☑	
Keteca USA	Water Works Heavy Duty Degreaser	7:1	99.17	☑	

Conclusion: Upon completion of testing, it was determined that both cleaners were very effective at removing the penetrant oil spray from BeCu substrates. Next steps would be to test the effectiveness of the cleaners in removing aviation grease from BeCu substrates.