CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2019

DateRun: 07/09/2019

Experimenters: Julia Doyle

ClientType: Machinery Manufacturer

ProjectNumber: Project #1

Substrates: Copper, Stainless Steel

PartType: Part

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Visual, Wipe

Purpose: To evaluate the effectiveness of aqueous cleaners for the removal of gundrill oil/coolant from copper and steel alloy company parts using heated ultrasonics.

Experimental Procedure: Two ultrasonic machines were used, one for each cleaner, to clean pre-contaminated parts with a gundrill-oil/coolant mixture. Each cleaner had one steel alloy pipe and copper bar and were immersed in a heated ultrasonic bath for 25 minutes. Parts were removed from the tank and spray rinsed with ambient tap water for 15 seconds. Parts were air dried at room temperature (68F) for one to two minutes depending until dry. Each part was visually analyzed and a wipe test using a clean swab was performed on each part after cleaning. Pictures were taken before and after.

Chemistries Evaluated:

1. Buckeye Immersion Cleaner
2. Micro 90 Concentrated Cleaning Solution

Company Name	Product Name	Concentration	Temperature
Buckeye International	Buckeye Immersion Cleaner	20%	125 F
International Products	Micro 90 Concentrated Cleaning Solution	2%	100 F

Results: The steel alloy and the copper part cleaned in the Immersion Cleaner appeared to be clean after ten minutes. The copper part was removed, but the steel alloy part was kept in to ensure the inside was clean.

Wipe Test Key:

- 1 = extremely clean, no soil on wipe
- 2 = very clean, some soil on wipe
- 3 = slightly clean, moderate soil on wipe
- 4 = not clean, wipe completely soiled

Cleaner	Substrate	Wipe Test Rating
Buckeye Immersion Cleaner	Steel Alloy	1
	Copper	1
Micro 90	Steel Alloy	2
	Copper	1

Summary:

Substrates:	Copper, Stainless Steel
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Buckeye International	Immersion Cleaner	20%		☑	Buckeye Immersion Cleaner was effective for the removal of oil/coolant mixture on steel and copper company parts using heated ultrasonics.

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International Products Corporation	Micro 90 Conc.	2%		☑	Micro 90 was effective for the removal of oil/coolant mixture on steel and copper company parts using heated ultrasonics.

Conclusion: Both cleaners were considered effective at removing Gundrill oil and coolant mixture from copper and steel alloy parts provided by the company. Next step would be to provide clean samples from testing to client and considering piloting at facility.