CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	08/18/2023
Experimenters:	Alexander Symko, Amelia Wagner
ClientType:	Metal
ProjectNumber:	Project #1
Substrates:	Copper, Stainless Steel
PartType:	Coupon
Contaminants:	Greases, Lubricating/Lapping Oils
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Wipe
Purpose:	To find an effective alternative to nPB in removing metal working fluid and grease from copper and stainless steel rings
Experimental Procedure:	Two cleaners were chosen to be tested, Cleaner 1. Surface Cleanse 930 10% concentration, and Cleaner2. Mirachem 500 33% concentration. Three types of substrates were supplied by the company, being copper rings, steel discs (female) and steel discs (male). Two soils were tested with each cleaner, Soil A. Moly Dee (the most difficult soil for the company to remove), and Soil B. Tap Magic EP-extra (the most used soil). Three coupons of each substrate were used for each soil, meaning a total of 18 coupons were used for each cleaner. The coupons were soiled by dabbing the soils on using a swab. The coupons were then subjected to 15 minutes of unheated immersion in their respective cleaner with a stir bar set to 200 rpm. Once the coupons were removed, their cleanliness was determined with a white glove test. Each coupon was wiped with a white cotton glove. If any soil came off onto the glove the coupons were declared to still be soiled. If no soil came off onto the glove the coupons were declared clean.

Results:

Cleaner	Soil	Substrate	White Glove Test
Surface Cleanse 930 10%	A	Copper	X
		Copper	X
		Copper	X
		Steel (F)	X (almost)
		Steel (F)	X (almost)
		Steel (F)	X
		Steel (M)	O
		Steel (M)	X (almost)
		Steel (M)	X (almost)
	B	Copper	X (almost)
		Copper	X (almost)
		Copper	X (almost)
		Steel (F)	O
		Steel (F)	O
		Steel (F)	O
		Steel (M)	O
		Steel (M)	O
		Steel (M)	O
Mirachem 500 33%	A	Copper	X
		Copper	X
		Copper	X
		Steel (F)	X
		Steel (F)	X
		Steel (F)	X
		Steel (M)	X
		Steel (M)	X
		Steel (M)	X
	B	Copper	X
		Copper	X
		Copper	X

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		Steel (F)	O
		Steel (F)	O
		Steel (F)	O
		Steel (M)	O
		Steel (M)	O
		Steel (M)	O

Summary:

Conclusion: Surface Cleanse 930 10% concentration was not an effective cleaner in removing the soil from the coupons using unheated immersion but shows promise with the introduction of heat or ultrasonics. Mirachem 500 33% was not an effective cleaner in removing the soil from the coupons using unheated immersion.