CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 08/05/1998

Experimenters: Jason Marshall

ClientType: Aerospace Industry

ProjectNumber: Project #1

Substrates: Alloys, Nickel

PartType: Part

Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Black light

Purpose: To compare the current cleaner to other aqueous cleaner.

Experimental Procedure: Parts were immersed into a beaker containing the oil. Observations were made under black light conditions to determine a baseline level of fluorescence. Five cleaners were selected from the laboratories database of previous trials and from vendor information. Chemistries were made into 15% solutions using DI water in 600 mL beakers. The beakers were placed into a 40 kHz Crest ultrasonic unit model 4Ht 1014-6 and heated to 150 F. One part was placed into each beaker and cleaned for three minutes with the ultrasonic unit working. Parts were inverted and cleaned for another 3 minutes. Each part was removed and rinsed with tap water at 120 F for 20 seconds and allowed to air dry. Black light observations were made and recorded.

CONTAMINANTS: Oil--Zyglo Penetrant ZL-27A
CONTAMINATING PROCESS USED: Parts were immersed into a beaker containing the oil

Results: Two of the six chemistries tested proved to have excellent removal of the oil. The amount of fluorescence on the parts was similar to the current cleaner. Table 1 ranks the six cleaners tested in this experiment.

Table 1. Comparison of Chemistries

CHEMISTRY	RANKING (1 = Best, 6 = Worst)
Blue Gold	3
Daraclean	5
Inproclean	4
Valtech	1
Aquasonic	6
SWR One	2

Very little of the oil remained on the Valtech cleaned part as evidenced under black light. SWR One part was almost as clean as the Valtech part. The Blue Gold, Inproclean and Daraclean parts all had dark spots on them. Under the black light these spots fluoresced. Amounts of the oil remaining on the Aquasonic cleaned part were visible without the use of black light.

Summary:

Substrates:	Alloys, Nickel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Magnaflux	Zyglo Emulsifier ZR 10B	15	0.00	☐	
Carroll Company	Blue Gold Heavy Industrial Cleaner	15	0.00	☐	
Magnaflux	Daraclean 282	15	0.00	☐	
Oakite Products	Inproclean 3800	15	0.00	☐	
Valtech Corporation	Valtron SP 2275	15	0.00	☑	
Hubbard Hall Inc	Aquasonic 201	15	0.00	☐	
SWR Corporation	SWR One	15	0.00	☑	

Conclusion: Two cleaners, Valtech and SWR One, were determined to clean as well as the client's current cleaner, Zyglo Emulsifier. The next experiment will compare these two cleaners to Blue Gold in the removal of the EDM oil.