CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2002
DateRun:	11/11/2002
Experimenters:	Jason Marshall
ClientType:	Manufacturing
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Part
Contaminants:	Oil
Cleaning Methods:	Ultrasonics
Analytical Methods:	OSEE
Purpose:	To evaluate client requested products on supplied parts
Experimental Procedure:	Two products were selected based on client request for cleaning supplied parts. Both was diluted to 5% using DI water in 1500 ml beakers and heated to 130 F on a hot plate. Each solution was degassed for 5 minutes in a Crest 40 kHz ultrasonic tank. OSEE readings for six supplied parts were recorded using a PET SQM 100. Multiple readings were made for each of the parts. Three parts were cleaned in each solution for 6 minutes using ultrasonic energy. Parts were rinsed in DI water at 120 F for 15 seconds followed by drying with a Master Appliance Heat Gun at 500 F for 30 seconds. Once dry parts were dry, OSEE readings were recorded. The parts were then visibly inspected and wiped with a white towel soaked with Acetone to determine cleanliness. Contaminant: Milacron Marketing Company CIMTECH® 310 metal working fluid concentrate (102-71-6, 78-96-6, 26896-20-8)
Results:	The parts cleaned during this trial did not show any signs of the black residue after wiping with acetone soaked towels and swabs. OSEE readings showed that Det O Jet performed slightly better than the Liquinox. Table 1 below lists the OSEE readings for all six parts cleaned.

Table 1. OSEE Measurements

Det O Jet				Liquinox	
	Dirty OSEE	Clean OSEE		Dirty OSEE	Clean OSEE
Elbow 1 body	157	471	Elbow 4 body	202	257
	154	440		184	228
	146	331		247	209
	162	377		211	272
	151	291		191	278
	137	236		188	209
	151	358		204	242
Elbow 1 ring	260	573	Elbow 4 ring	225	288
	272	531		293	314
	246	493		244	327
	323	521		314	314
	271	707		339	375
	445	444		365	281
Average	303	545	Average	297	317
Tee 1	154	276	Tee 2	35	273
	136	321		199	268
	118	315		206	243
	154	288		158	288
	147	311		223	268
	171	268		157	239
	153	248		171	201
	109	305		188	321
	144	383		203	288
	113	354		161	272

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Average	140	307	Average	170	266
Elbow 2 body	175	213	Tee 3	171	331
	275	207		249	274
	208	212		276	329
	234	215		192	400
	136	251		183	301
	79	260		197	254
Average	185	226		131	233
Elbow 2 ring	181	244		164	257
	170	230		262	277
	213	223		198	312
	185	208	Average	202	297
	154	214			
	173	212			
Average	179	222			

When comparing the results from this trial with the two products evaluated previously, the Daraclean product resulted in the cleanest parts based on OSEE readings, followed by Det O Jet. Citranox and Liquinox resulted in similar cleaning effectiveness. Table 2 lists the results from both this trial and the trial conducted for Daraclean and Citranox.

Table 2. Project Cleaning Comparison

Trial 5				Trial 7			
	Dirty				Dirty		
	T	E	E Ring		T	E	E Ring
Overall	151	152	203	Overall	171	219	229
	Clean				Clean		
	T	E	E Ring		T	E	E Ring
Citranox	275	254	330	Det O Jet	307	292	383
Daraclean	425	427	420	Liquinox	281	242	317
Acetone	165	245					
	288	308	298				

Summary:

Substrates:	Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Det-O-Jet	5	0.00	☑	
Alconox Inc	Liquinox	5	0.00	☑	

Conclusion:

Both products tested in this trial did remove the black coating that has been a problem for the client. Det-O-Jet was more effective than the Liquinox. When compared to the previous trial, Daraclean 282 was the most effective product evaluated thus far.