CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2002
DateRun:	12/17/2002
Experimenters:	Jason Marshall
ClientType:	Manufacturing
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Part
Contaminants:	Films
Cleaning Methods:	
Analytical Methods:	OSEE
Purpose:	To evaluate effect wiping has on OSEE readings for stainless steel parts.
Experimental Procedure:	Four stainless steel slugs were analyzed as received using a PET OSEE SQM 100 instrument. Four readings were recorded for each side to establish a baseline. Parts were subjected to two separate wipings. Three slugs were wiped with acetone first, followed by OSEE readings. Then the part was wiped with isopropyl alcohol and a third set of OSEE readings were taken. One part was first wiped with a dry paper towel, followed by OSEE readings. Then the part was wiped using isopropyl alcohol and a third set of OSEE readings was recorded. Two different paper towels were used: Kimberly-Clark Kaydry EX-L and Texwipe TechniCloth TX 609.
Results:	From the OSEE readings, it appears that the type of wiper used has the most effect on the readings obtained. The Kimberly-Clark wipers caused the OSEE readings to be lower than the Texwipe wipers. Table 1 lists the readings recorded for each slug.

OSEE Analysis

KC Wipe	Base	Acetone	Alcohol	Observation
Part 1A	229	229	284	Alcohol wipe resulted in visible removal of grey material
5 sec wipe	220	258	226	
	306	257	253	
	238	309	225	
Average	248	263	247	
	Base	Acetone	Alcohol	Observation
Part 1B	280	262	296	Acetone wipe resulted in visible removal of grey material
10 sec wipe	256	315	234	
	222	312	232	
	248	260	279	
Average	252	287	260	
	Base	Acetone	Alcohol	
Part 2A	228	279	241	
10 sec wipe	288	300	271	
	288	308	280	
	255	333	265	
Average	265	305	264	
	Base	Acetone	Alcohol	
Part 2B	192	275	339	
10 sec wipe	278	256	264	
	488	287	239	
	249	338	186	
Average	302	289	257	

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	Base	Dry wipe	Alcohol	
Part 3A	274	229	237	
10 sec wipe	436	243	286	
	320	257	361	
	262	337	273	
Average	323	267	289	
Texwipe	Base	Dry wipe	Alcohol	Observation
Part 3B	233	294	308	Alcohol wipe resulted in visible removal of grey material
10 sec wipe	232	229	338	
	267	221	310	
	302	245	336	
Average	259	247	323	
	Base	Acetone	Alcohol	Observation
Part 4A	267	289	288	Acetone wipe resulted in visible removal of grey material
10 sec wipe	239	405	358	
	235	308	401	
	313	275	351	
Average	264	319	350	
	Base	Acetone	Alcohol	Observation
Part 4B	304	272	332	Acetone wipe resulted in visible removal of grey material
10 sec wipe	229	329	327	
	252	348	273	
	298	303	363	
Average	271	313	324	

The second table compares the readings between each wipe with the base readings. Values that are negative signify that the second reading was less than the first reading. For example, the W1 reading (acetone with Kimberly-Clark wiper) was 15 points higher than the base reading. The W2 (alcohol with Kimberly-Clark wiper) was 16 points lower than the W1 reading. The third column shows that the W2 reading (alcohol wipe) was 1 point lower than the base reading.

Table 2. Wipe Effect Comparison

	W1-B	W2-W1	W2-B

Summary:

Conclusion: Wiping with Acetone and Alcohol using the Texwipe wipers resulted in higher OSEE readings than wiping with the Kimberly-Clark wipers. The acetone soaked wiper was more effective than wiping with a dry Texwipe.