CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1999
DateRun:	08/30/1999
Experimenters:	Jason Marshall
ClientType:	Metal Working
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Part
Contaminants:	
Cleaning Methods:	
Analytical Methods:	OSEE
Purpose:	To compare parts cleaned in three different solutions using OSEE.
Experimental Procedure:	Parts were received cleaned by client. Five OSEE readings were made per side for each part supplied. Optically Stimulated Electron Emission or PEE, Photo Electron Emission is based on the principle that metals and certain surfaces emit electrons upon illumination with ultraviolet (UV) light. These electrons can be collected, measured as current, converted to a voltage and digitally displayed. A surface contaminant will either enhance or attenuate this signal, depending on it own photoemissive nature. While OSEE will not identify a contaminant, it is a good comparative tool to determine the degree of contamination. This method is best suited for thin films (oils, etc.) and not particulate matter (dust, for example). The average values were calculated and compared to current cleaner levels. The solutions used were: Current Cleaner Mix Almet B & Chem-Crest Oakite Products Inpro-Clean 3800 Calgon Corp SMS 206 SUBSTRATE MATERIAL: Aluminum Parts (5052) CONTAMINANTS: Clean Parts for Analysis CONTAMINATING PROCESS USED: N/A
Results:	Of the two new products being compared, Calgon Corp had readings that were most similar to the current cleaning solution. Table 1 lists the readings made from both top (shiny) and bottom sides of supplied parts.

Table 1. OSEE Readings

Cleaner	Current	Cleaner	Oakite	Calgon		
Location	Top	Bottom	Top	Bottom	Top	Bottom
	396	728	269	778	297	932
	482	783	259	742	342	926
	413	674	242	704	364	930
	514	760	251	802	302	931
	528	670	234	704	291	932
	798	721	458	625	821	925
	838	725	439	601	841	925
	840	808	478	561	812	927
	696	641	524	542	880	932
	736	718	401	523	758	931
	799	784	269	567	829	932
	822	907	375	571	823	926
	742	666	287	569	736	929
	702	721	442	573	890	931
	700	765	290	628	747	931
	659	701	363	590	792	930
	772	687	415	601	780	921
	853	754	409	611	798	933
	611	714	332	646	769	930
	688	577	280	558	738	931
	754	739	407	584	778	912
	657	814	429	697	931	918
	585	640	444	642	869	923
	642	636	447	573	847	929

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	570	522	419	598	697	926
	781	686	343	613	868	926
	815	836	338	550	870	924
	895	736	274	646	839	927
	773	655	363	639	913	920
	612	606	304	558	779	927
	891	754	335	719	824	919
	819	803	405	595	861	931
	708	863	440	541	834	926
	667	786	304	673	831	929
	710	621	369	651	809	932
	811	498	248	272	849	387
	808	527	392	252	893	339
	744	479	371	245	840	364
	656	390	259	254	930	459
	688	323	225	246	751	288
Average	**704**	**685**	**353**	**576**	**761**	**857**

Summary:

Conclusion: From the OSEE readings made, the Calgon product yielded values that were similar to the current levels. The average Top readings were 761 for Calgon and 704 for the Current cleaner. The Bottom values averaged 857 for Calgon and 685 for the Current cleaner.