CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2001
DateRun:	03/20/2001
Experimenters:	Jason Marshall
ClientType:	Tool Manufacturer
ProjectNumber:	Project #2
Substrates:	Steel
PartType:	Part
Contaminants:	
Cleaning Methods:	
Analytical Methods:	FTIR
Purpose:	To determine surface contaminants.
Experimental Procedure:	This procedure is applicable to all contaminating soils (process fluids and unwanted residue) which possess infrared energy absorbing characteristics. Samples being investigated were analyzed as soon as possible after completion of the processing to avoid further contamination and changes in surface conditions. The use of a Fourier Transform IR instrument in these determinations is far superior in comparison to dispersive instrumentation because of its inherently greater sensitivity and superior signal to noise characteristics. A Nicolet Instruments Corp. MAGNA 550 FT IR was used for all infrared analyses. From each recorded spectrum of a contaminated specimen identify, a characteristic peak representative of the contaminant was selected. First an unused disposable IR card (3M Type 6) was placed into the platform of the sample stage and the surface was scanned from 4000 cm-1 to 400 cm-1 to record a background spectrum. Immediately following this, the IR card contaminated with the liquid lubricant was placed into the sample stage and scanned over the same wave number range as above. The resultant spectrum was labeled and archived. For the dirty ratchets, a swab soaked in isopropyl alcohol was wiped along an area of the ratchet. The “dirty” swab was then wiped over an unused IR card. The sample card was placed in the FT-IR and scanned over the specified range. The new spectrum was compared to the liquid lubricant sample to determine if there was lubricant remaining on the parts. If the spectrums were not identical, the dirty ratchet sample spectrum was compared with the FT-IR spectrum libraries. SUBSTRATE MATERIAL: Steel Ratchet handles
Results:	The graphs for the different cards are shown in Figures 1-4. The spectrums have also been sent to Spectra Tech for further analysis.
Summary:	
Conclusion:	Possible analysis from Spectra-Tech coming.