CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1996
DateRun:	09/26/1996
Experimenters:	Jay Jankauskas
ClientType:	Biomedical Device Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Part
Contaminants:	
Cleaning Methods:	
Analytical Methods:	FTIR, OSEE
Purpose:	More OSEE Results for cleanliness analysis
Experimental Procedure:	
Results:	I just finished up a round of FTIR tests on the parts that you have sent to me thus far and came out with results similar to the OSEE results I sent to you last week. First, I'll give you a brief background on FTIR so you know what these results mean. FTIR exposes the part to infrared light in the wavelength range of 4000 to 400 cm-1. Organic contaminants will absorb this light at a certain wavelength depending on the type of organic bond (C-C, C=C, C-OH, etc.). The more of this organic substance is present, the more it will absorb the light source. When the FTIR takes the readings, it displays the results in the form of a graph. the x axis is the wavelength and the y axis is the % of light transmitted through the substance. By looking at this graph you can determine two different things; 1) the contaminants identity 2) how much contaminant is present. The contaminants identity is determined by the wavelength value where a peak occurs. In your case, we are looking for hydrocarbon oils which are present at the area between 2900 cm-1 and 2800 cm-1 (this is where C-C bonds are detected). The amount of contaminant is determined by peak amplitude. The larger the amplitude the more contaminant present. In order to get accurate results, I had to extract the contaminants off of the part's surface with a solvent (Asashiklin HCFC 225). To take a sample, I would place one part in a clean scintillation vial and add 1 ml of solvent. I would then shake this sample for five minutes, place one drop of contaminated solvent on the sample card and allow the solvent to evaporate off (thus leaving only the contaminant on the sample card). I would then take a reading of the sample and determine the C-C bond peak amplitude using the FTIR software. The results obtained are as follows: 1/8 Precision Ball- FTIR showed that the alcohol wipe was just as effective as the vapor degreasing. OSEE Showed that vapor degreasing performed slightly better. 11 Fr. Spring- Pretty much the same results as the precision ball. FTIR showed slightly better cleaning with alcohol with OSEE suggests that vapor degreasing is more effective. J Pins- Both analytical methods show that the alcohol cleaning performed much better than the vapor degreasing. Short Pins- FTIR showed that both the alcohol cleaning and the vapor degreasing were equally effective. OSEE was not performed due to the small size of the pins. Impeller Plates- Both analytical methods show that both the alcohol soak and the alcohol soak and wipe methods were superior to vapor degreasing. Impeller shafts- Both analytical methods show that the alcohol cleaning is very ineffective whereas the vapor degreasing performed very good.
Summary:	
Conclusion:	