CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1995
DateRun:	09/19/1995
Experimenters:	Donald Garlotta, Jay Jankauskas
ClientType:	Silversmith
ProjectNumber:	Project #1
Substrates:	Sterling/Silver
PartType:	Part
Contaminants:	Buffing/Polishing Compounds
Cleaning Methods:	Mechanical Agitation
Analytical Methods:	Visual
Purpose:	Find cleaner that outperforms current chemistry
Experimental Procedure:	The purpose of this experiment is to find a cleaning chemistry that will outperform Silversmith's current chemistry (Texolite 1734SL with defoamer additive). Three different cleaners will be tested against a 2% solution of Texolite 1734SL; WR Grace Daraclean 211 (10% by volume), Oakite Inproclean #2000 (5% by volume), Calgon Geo-Guard #2215 (5% by volume). Two samples will be cleaned in each of the four cleaning solutions. To get a good idea of how their current chemistry works, operating parameters at Silversmith were duplicated as close as possible. To obtain a moderate agitation, air sparging was used. Cleaning was done for eight minutes at 140 F (all cleaning solutions were made up with tap water). A tap-water rinse of 10 minutes at 150 F was performed. The samples were then dried under air knives for 4 minutes and then placed in a convection oven set at 140 F for 20 minutes.
Results:	All three cleaners outperformed the Texolite 1734SL. The Calgon Geo-Guard performed excellent removing all buffing compound except for a small amount in some of the crevices. The Geo-Guard also is no foaming and the amount of spotting was considerably less than that of the Texolite 1734SL (although there was a slight oily film on the samples). The WR Grace Daraclean cleaned better than the Texolite but not quite as good as the Calgon Geo-Guard. The Daraclean had the least amount of spotting without leaving any cleaner residue. The Oakite Inproclean was similar to the Texolite 1734SL but not nearly as effective as the Daraclean or the Geo-Guard. There was a large amount of cleaner residue remaining. The Oakite Inproclean #3800 will not be tested further due to it's ineffectiveness. Future trials include evaluating aqueous cleaners from Matchless Company, looking at a better rinsing process and possible testing with ultrasonics.

Summary:

Substrates:	Sterling/Silver				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Texo Corporation	Texolite 1734 XL	2		☐	
Magnaflux	Daraclean 211	10		☑	
Oakite Products	Inproclean 2000	5		☐	
Calgon Corporation	Geo Guard 2215	5		☑	

Conclusion: The Calgon Geo-Guard and WR Grace Daraclean #211 showed good potential in this preliminary trial. Future trials will test out some new chemistries currently being sent to us, as well as resolving the issue of spotting after drying.