CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	04/18/2008
Experimenters:	Heidi Wilcox
ClientType:	Machining Company
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Part
Contaminants:	Cutting/Tapping Fluids
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Visual
Purpose:	To conduct walk through of facility and collect samples to assist in changing out of TCE to avoid EPA regulations and paperwork
Experimental Procedure:	Initial Contact – Lab Visit We were contacted by Mike Morgante of STD gear about changing out of TCE to avoid EPA regulations and paperwork on April 2, 2008. We invited company to lab to see if any of the drop in solvents based on nPB would work for him as the company wanted to keep their degreaser to facilitate cleaning of parts with small blind holes. Several parts were cleaned using immersion cleaning in the lab on the parts various parts. These included thin gears with larger open holes about 3 inches in diameter to larger, longer parts, about 4 inches long, tapered at each end with a small blink hole in it about 2 inches deep. These were only a small representation of the many different types of parts they worked with. The lab determined that the nPB based cleaners of 90% nPB or greater seemed to work on the parts. The company left with the nPB alternatives and contact information for the salesperson at Hubbard Hall that sells Hubtron PB. Site Visit – April 19, 2008 The initial lab work resulted in the lab going on site to the company to visit and conduct a walk through of the shop. The company member present, including the president discussed about the fact that nPB was an interim solution to TCE replacement due to possible near future regulations being considered in many New England states. The president talked to the lab about how cost was very important to them as they were a small shop. They were having issues with the nPB, but it was resolved by working on the chiller and also the settings for the new solvent.
Results:	On the visit the cleaning process of the vapor degreasing was supplemented by using small one-gallon buckets of nPB. The workers were using the buckets to clean each part in after they were machined at each station. The tops of these buckets remained open even after workers finished dipping the parts into the nPB with bare hands. The lab would try to see if the lab could find an alternative for the company that would work in the buckets to save the company money by allowing them to use another, possibly cheaper solvent for this dip cleaning use and to also protect the worker better. Testing on the three soils being used revealed that the soils were tough to remove with dip, immersion cleaning with no mechanical agitation. Cleaning on site included a small, approximately 3-gallon vapor degreaser. It is small and old but worked well for them. All parts are eventually cleaned in this degreaser at some point in the manufacturing process. They also do acid washes and other chemical tempering baths. This doesn't affect the degreasing, so it is not a process the lab was looking into. From the visit, samples of the soils were taken back to the lab to test. There was a rust preventative, a grinding fluid and a cutting fluid.
Summary:	
Conclusion:	At the end of a June the company invited the lab down for a walk through any time and said that they were still interested in seeing what aqueous products could do for their parts. The lab asked for at least three parts ranging in sizes and shapes so the lab could determine which parts will work best with aqueous and possibly ultrasonic cleaning. This could reduce the amount of solvent the company would need to use a year and decrease hazards to workers overall. Visit 2 is set for Thursday July 3rd. After that the plan will be to work on finding aqueous cleaners that may work on some of their parts and recommend a secondary cleaning line for those parts that will work with their current processes. They are under no time frame for this, and the lab can work at their own pace.