CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	04/30/2008
Experimenters:	Heidi Wilcox
ClientType:	Tool Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Part
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Metal fines
Cleaning Methods:	Ultrasonics
Analytical Methods:	Visual
Purpose:	Looking to replace their current cleaning line as the process was not effective enough
Experimental Procedure:	At this facility, raw steel is cut to form small, pointed cylinders, which are then cold iron shot blasted and then sent to a machine to start the tooling process. The company makes tools for other companies that make screwdrivers. The company makes the bit for other machinists to make the screwdrivers. The first step in the process is to take the rough part and blast it with chilled iron shot in a BCS blaster cabinet. When the parts come out of that process, they are gritty and have shot on them. The shot needs to be cleaned off before it can go to the next step of machining. Currently the company was using Spartan Biorenewable Industrial Cleaner but the company was not happy with the cleaning. They are immersing the parts into the cleaner and using compressed air to dry it off. Following this process, the parts go to a machine where the soils are added. The Moly D spray lubricant was applied to help with grip of the tooling machine and the part. Then oils and cutting fluids were added to help protect against friction, heat and pressure. It was noted that most of the Moly D comes off during the tooling process. The parts are cleaned in tanks containing a Simple Green Solution. It is heated to about 165 F and the parts are cleaned in baskets. The baskets containing the parts are lowered into the tank, agitated and brought up and left to dry. Cleaning was not very effective. After the parts are cleaned in this process, they go on to be further tooled; heat treated in a furnace, tooled some more and then cleaned one last time.
Results:	At the completion of the site visit, sample parts from different stages of processing were gathered to take back to the lab. The four soils, two aerosol lubricants, a cutting fluid and a wax like oil were provided as well. A bag of the cold iron shot also was collected to take back to the lab.
Summary:	
Conclusion:	Following the site visit, the company had decided to purchase a spray washer and was evaluating a cleaning product supplied by the same vendor of the equipment. The lab obtained a sample of this product and compared it to the removal efficiencies of the other products the lab had tested so far. Additional parts were sent to the lab for testing. These parts were treated with the iron shot. Several cleaning products were more effective than the product the company had evaluated with the spray washing system. Parts have been cleaned under various settings and will be returned to the company for internal review.