CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	09/24/2007
Experimenters:	Heidi Wilcox
ClientType:	Wire & Cable Mfr
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Part
Contaminants:	Resins/Rosins
Cleaning Methods:	Mechanical Agitation
Analytical Methods:	Visual
Purpose:	To remove resin from equipment as part of maintenance of equipment
Experimental Procedure:	Conduct a walkthrough of facility to collect samples to return to lab for testing. Contact with the lab was made due to an employee being injured during routine cleaning operation of the metal guides coated with resin. The company paints and coats thin metal strips with paint. They were previously using an acetone-based paint that evaporated readily leaving little residue on the guides that the metal cable or strips passed through. When going from an acetone-based paint to a water-based paint they also had to change their drying process. Now the cable is painted and run through a heating cabinet where the guides are on shafts in sets of twos. The cable and the paint are now dried in this cabinet, resulting in the resin containing heated, dried paint and metal fines. The resin mix was left on the circular, metal guides. These guides have to be cleaned periodically as a result of the new paint/resin process. The time between cleaning the guides varies so there is no set schedule for cleaning. Cleaning is determined visually by the machine operator. The guides are approximately 6 inches in diameter, half an inch thick with a groove in them where the cable runs. The guides are stainless steel and have a hole in the middle where the shaft goes through them. Some of the guides also have holes around the perimeter where the resin can gather. The resin is hard. In areas that are sticking off the part or in holes, the hard resin can be broken off the part. Generally, the resin is allowed to build up to about 1/8 of an inch but can be as much as ¼ of an inch thick. This thickness was a worst-case scenario for this operation. Cleaning of these parts was done by mechanical means; no chemicals were currently being used. The resin was lathed, hammered and/or chiseled off. This is the process where an injury occurred. The company wanted to find another way to clean the parts.
Results:	Time was not an issue as they have replacement guides that can be put on a machine so the process can keep running. They do not have an infinite number of guides, but they do have some leeway in cleaning time. The company also is willing to buy equipment to clean the guides. The plan is to try to find the company a way to clean the parts without shifting hazards to the worker, causing the company to have to pay a large amount for hazardous waste disposal, to use an excessive amount of energy, manpower or capital.
Summary:	
Conclusion:	After returning to the lab, it was determined that the paint was not going to be able to be turned into resin in our lab like it was in the facility. The company was contacted to send a supply old resin shavings from the parts so the lab could test cleaners on resin pieces. The process proposed by the lab was to submerge resin pieces in solution at room temperature, some heated and use no mechanical energy, use either stir bar agitation or ultrasonic cleaning. After resin pieces are tested, two solutions would be used on the part the company supplied with the resin on it. The lab would immerse one side in one cleaner and the other in the second.