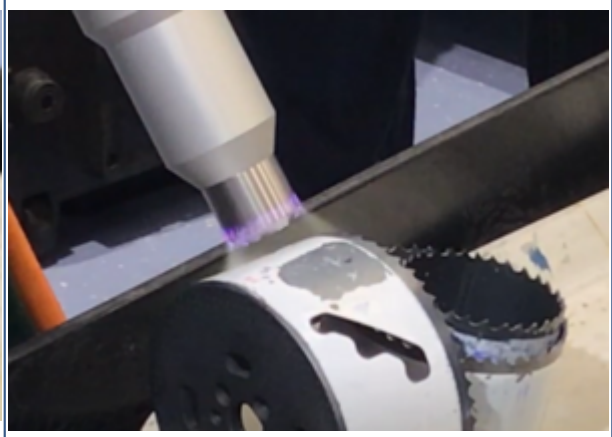
CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	01/09/2023
Experimenters:	Alicia McCarthy, Siddhant Trivedi, Serena Burkinshaw, Gabriel Salierno, Richard Burke
ClientType:	Tool Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Part
Contaminants:	Inks, Paints
Cleaning Methods:	Plasma
Analytical Methods:	Visual
Purpose:	To evaluate the effectiveness of a plasma jet for UV ink removal on steel parts during a demo at TURI by Plasmatreat USA, Inc.
Experimental Procedure:	Steel tool parts provided by a client were tested during a plasma jet demo at the TURI Laboratory. Parts were manually cleaned by the demo representative in the presence of TURI Laboratory staff. The plasma generator used compressed air and utilized a 110v standard wall outlet. The plasma jet came into contact with the side of a medium-sized steel part and the width of the plasma stream was expanded to evaluate the amount of paint that could be removed within two minutes. Visual observations of ink removal from the part were noted and photos were captured during the cleaning process.
Results:	The plasma jet removed a majority of the UV white paint from the surface of the steel, tool part. After initial contact with the surface of the part (Figure 1), the paint started to visually come off the part. The plasma gun was able to remove a larger area of paint after expanding the width of the stream (Figure 2), and the plasma removed a majority of the paint where it came into contact.

Figure 1	**Figure 2**
	
Image of the plasma jet coming into initial contact with the tool part and starting to remove the ink from the surface.	Image of the plasma jet after two minutes of contact with the tool part. The ink has been mostly removed from the surface where the plasma stream came into contact.

Summary:

Conclusion: Plasma was considered an effective method to remove UV ink from steel parts. This may be a method of cleaning that should be further explored as an alternative to manually cleaning with a solvent. The next step will be to connect the vendor with the client to evaluate implementation feasibility, automation options, and cost.