CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2021
DateRun:	03/11/2021
Experimenters:	Zoe Lawson, Justin Kiander
ClientType:	Chemical Company
ProjectNumber:	Project #1
Substrates:	Iron
PartType:	Part
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils
Cleaning Methods:	Ultrasonics
Analytical Methods:	Visual
Purpose:	The purpose of this experiment was to begin parts testing with top cleaners.
Experimental Procedure:	An ultrasonic basket was filled with about 1000mL of Metalnox 6386 at 100% concentration. This was just enough to allow the full submersion of one side of the cast iron part provided by the company. The part was pre-soiled with lubricant and cutting fluid that was previously tested. Photos of the part were taken before cleaning to show the presence of the soil. The part was then submerged into the solution for 15 minutes at room temperature. After 15 minutes, the part was dried with a heat gun and more photos were taken to show performance of unheated immersion. However, not enough soil had been removed in order to claim this as an effective method. Due to the limited access to parts for further testing, the Metalnox solution was placed in an unheated ultrasonic bath and the same side was cleaned via unheated ultrasonics for 15 minutes. After 15 minutes had passed, photos were taken again to document progress of cleaning. All photos were sent to the client to verify the performance of cleaning.
Results:	As previously stated, unheated immersion was insufficient in cleaning the part. Unheated ultrasonic cleaning was very effective with distinct visual difference between the cleaned area and the rest of the part. There was no apparent visual damage to the substrate following the cleaning process. However, the company contact has been asked to verify overall performance before progressing to the remaining cleaners due to the limited access to more parts, should further testing be necessary. Overall, it is believed that unheated ultrasonic cleaning for 15 minutes with Metalnox 6386 at 100% concentration is an effective method. Upon company approval, next steps would be to conduct unheated ultrasonic cleaning with the remaining alternatives.

Summary:

Substrates:	Iron				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Kyzen Corporation	Metalnox M6386	100%	100.00	☑	Unheated ultrasonic cleaning was extremely effective, with distinct visual difference between the cleaned and uncleaned areas of the part. Upon company verification, testing will progress to the remaining alternatives.

Conclusion: Although unheated immersion was unsuccessful for parts cleaning, it was determined that unheated ultrasonic cleaning with Metalnox 6386 at 100% concentration was an effective method for cleaning company parts. Upon company verification of performance, next steps would be to progress parts testing to the remaining alternatives using the unheated ultrasonic method.