CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 08/04/2020

Experimenters: Alicia McCarthy, Justin Kiander

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Other

PartType: Part

Contaminants: Buffing/Polishing Compounds, Waxes

Cleaning Methods: Ultrasonics

Analytical Methods: Photography, Visual, Wipe

Purpose: The purpose of this experiment was to evaluate the effectiveness of high performing cleaners in removing soil from parts provided by the company.

Experimental Procedure: Two parts soiled with red & wax, white & wax, and white were provided by the company. One part was cleaned using a solution of Liquinox at a 1% concentration in a heated immersion bath at 170°F with a stir bar for agitation for 5 minutes. The second part was cleaned using a solution of Micro 90 at a 5% concentration in a heated ultrasonic bath at 120°F for 15 minutes. Before parts were cleaned, an image was taken of initial soil. A white glove test was the conducted to see how the soil rubbed off each part. Once the Liquinox solution reached the proper temperature of 170°F, parts were submerged into their respective beakers for 5 minutes. After 5 minutes, the parts were removed and allowed to air dry. Once the Micro 90 solution reached the proper temperature of 120°F, parts were submerged into the ultrasonic bath for 15 minutes. After 15 minutes, parts were removed and allowed to air dry. Pictures were taken once again to show progress after initial cleaning and another white glove test was performed. Because no part was fully clean after the initial process, cleaning was resumed to determine the total amount of time needed for each process. A picture of fully clean parts was taken at the end of the experiment.

Results:

Cleaner	Soil	Observations
Liquinox	Red & Wax	5 minutes was not enough time to clean. After 30 minutes, part had some residue still present which was removed with a wipe from a paper towel. Time could be reduced to 20-25 minutes with a wipe step.
	White & Wax	5 minutes was not enough time. After 30 minutes, the part was clean with slight residue removed with a wipe from a paper towel. Time could be reduced to 20-25minutes with a wipe step.
	White	5 minutes was not enough time. After 20 minutes, part had slight residue which was removed with a wipe from a paper towel.
Micro 90	Red & Wax	15 minutes was not enough time. After 30 minutes, one wipe with a paper towel removed the remaining residue. Time could be reduced to 20-25 minutes with a wipe step.
	White & Wax	15 minutes was not enough time. After 25 minutes, a slight residue remained which was removed with a wipe from a paper towel.
	White	15 minutes was not enough time. After 20 minutes, the part was clean with very minimal residue.

Summary:

CLEANING LABORATORY EVALUATION SUMMARY

Substrates:	Other				
Contaminants:	Buffing/Polishing Compounds, Waxes				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Liquinox	1%	100.00	☑	With the inclusion of a wipe step to remove residue, time of cleaning could be reduced to 20-25 minutes. Cleaning time was extended to 30 minutes to determine if heated immersion alone could completely clean the part.
International Products Corporation	Micro 90 Conc.	5%	100.00	☑	With the inclusion of a wipe test, total time for cleaning could be reduced to 20-25 minutes. Cleaning time was extended to 30 minutes to determine if heated ultrasonics alone could completely clean the parts.

Conclusion: Both Liquinox at a 1% concentration in a heated immersion bath at 170°F with agitation and Micro 90 at a 5% concentration in a heated ultrasonic bath at 120°F were effective at removing the red & wax, white & wax, and white soils. However, each cleaner needed more time than initially tested. Total time of cleaning could be reduced to 20-25 minutes with the inclusion of a wipe step.