CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 09/20/2020

Experimenters: Justin Kiander

ClientType: Metal Finishing

ProjectNumber: Project #1

Substrates: Galvinized Steel

PartType: Part

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual, Contact Angle (Surface Tension)

Purpose: The purpose of this experiment was to determine the effectiveness of the top two performing cleaners in removing vanishing oil from a company provided solvent cleaned galvanized steel piano hinge.

Experimental Procedure: One company provided solvent cleaned galvanized steel piano hinge was obtained. Each end of the hinge would be cleaned using one of the two top performing cleaners. Cleaners were prepared to the following concentrations and temperatures; Mirachem 500 20% 110°F, Shopmaster LPH 20% 130°F. Initial contact angles were obtained for the solvent cleaned hinge. The hinge was then soiled with the vanishing oil. Once solutions reached the proper temperatures, the hinge was submerged for 15 minutes into its respective cleaner. After 15 minutes, the hinge was rinsed in a deionized water bath at 115°F for 20 seconds. The hinge was then dried using an air gun on the hot setting. Cleaned contact angles were obtained and compared to the original solvent. Effectiveness of the cleaners was determined. A white glove test was conducted after cleaning to determine if any residual oil remained or was caught in the hinges.

Results:

Cleaner	Initial Contact Angle	Initial AVG	Final Contact Angle	Final AVG
Mirachem 500	64.55	57.69	69.66	64.08
	54.96		61.62	
	53.56		60.97	
Shopmaster LPH	65.88	66.69	74.50	70.2
	67.50		69.78	
	65.79		66.33	

Summary:

Substrates:	Galvinized Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Mirachem Corporation	Mirachem 500	20%	0.00	☐	Average contact angle of 64.08
Buckeye International	Shopmaster LPH	20%	0.00	☑	Average contact angle of 70.20

Conclusion: Both cleaners visually removed the vanishing oil, but Shopmaster LPH was the most effective cleaner with an average contact angle of 70.20. The white glove test revealed no residual oil for either cleaner.