CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	09/14/2023
Experimenters:	Alexander Symko, Amelia Wagner
ClientType:	University
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Paints
Cleaning Methods:	
Analytical Methods:	Visual
Purpose:	Testing the effectiveness of selected solvents on removing wet paint from coupons
Experimental Procedure:	4 alternatives were selected for testing. These were; Diethyl Carbonate, Dimethyl Sulfoxide, 1,3-Dioxolane, and Methyl Acetate. Aluminum C1020 alloy coupons were rated on a visual cleanliness scale, with 5 being completely dirty, and 1 being completely clean, with 3 coupons for each cleaner for experimental redundancy. Paint and Primer mixture provided by client were mixed in a 1:1 ratio and applied to the bottom section of the aluminum coupons as per industrial testing standard procedure. The coupons were then rated with the wet paint present to get dirty rating values. The coupons were then wiped with a low-lint wipe that had been dipped in the selected solvent, with 3 slow wiping motions along the bottom of each coupon, with a separate wipe being used for each coupon. The coupons were then allowed to dry overnight. The following day, the coupons were once again rated for visual cleanliness.

Results:

Cleaner	Coupon	Average Dirty Values	Average Clean Values
Diethyl Carbonate	1	5	1
	2	5	1
	3	5	1
Dimethyl Sulfoxide	4	5	1
	5	5	1
	6	5	1
1,3-Dioxolane	7	5	1
	8	5	1
	9	5	1
Methyl Acetate	10	5	1
	11	5	1
	12	5	1

Summary:

Conclusion: Due to the change in cleaning method, the above cleaners were far more effective than they would have been for standard immersion. This means that every cleaner was able to remove the entirety of the wet paint contaminant. Given that standard immersion is not exactly a 1-to-1 replication of the currently employed cleaning methodology, the laboratory felt it pertinent to test a variety of cleaning techniques. These alternatives will then be sent on to be tested for standard immersion.