CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2021
DateRun:	05/24/2021
Experimenters:	Anjali Bhagat
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To test the effectiveness of Purple Tiger reformulations in cleaning dried soda from aluminum substrates.
Experimental Procedure:	Ten reformulated Purple Tiger products were created and tested: PT 2021, PT 2021A, AHS, GSC, Conc, Conc A, Conc AL, Conc 10%, Conc A 10%, and Conc AL 10%. Three aluminum coupons were obtained and weighed for each of the reformulation products being tested. Coupons were then soiled with soda and baked in the oven at 400°F, for 10 minutes. After baking, coupons were allowed to cool, and a dirty weight was recorded. Coupons were then loaded onto a Gardner-scrub Straight Line Wash unit set to 10 cycles per minute for 20 cycles. Three pumps of cleaner were applied to each of the respective coupons and four pumps of cleaner were applied to the scrubbing blocks. The cleaner was allowed to sit for 30 seconds. Following the 30 seconds of resting, the SLW unit was run to simulate scrub cleaning. Coupons were then removed from the machine and allowed to dry in air for 24 hours. After the drying period, coupons were weighed, and a final clean weight was recorded. Effectiveness of the cleaners was determined.

Results:

Cleaner	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG
PT 2021	0.1625	0.0764	52.98	49.78
	0.1517	0.0747	50.76	
	0.1489	0.0810	45.60	
PT 2021 A	0.1575	0.0936	40.57	48.9
	0.1462	0.0611	58.21	
	0.1352	0.0704	47.93	
AHS	0.2168	0.1591	26.61	54.86
	0.1638	0.0884	46.03	
	0.3122	0.0252	91.93	
GSC	0.2534	0.0401	84.18	68.06
	0.2613	0.0851	67.43	
	0.1668	0.0791	52.58	
Concentration	0.3182	0.0412	87.05	76.88
	0.1591	0.0298	81.27	
	0.2338	0.0881	62.32	
Concentration A	0.3306	0.1150	65.21	57.79
	0.2282	0.1794	21.38	
	0.3371	0.0446	86.77	
Concentration AL	0.2850	0.1240	56.49	37.57
	0.1976	0.1339	32.24	
	0.2999	0.228	23.97	
Conc 10%	0.4156	0.1733	58.30	70.17
	0.4500	0.1092	75.73	
	0.3835	0.0902	76.48	
Conc A 10%	0.4219	0.0179	95.76	96.38
	0.4445	0.0117	97.37	
	0.4035	0.0161	96.01	
Conc AL 10%	0.4503	0.0673	85.05	92.73
	0.4052	0.0170	95.80	
	0.3649	0.0097	97.34	

Summary:

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Conclusion: Concentration A 10% and Concentration AL 10% were the most effective reformulations to clean dried soda from aluminum substrates, removing an average of 96.38% and 92.73%. Next steps are to send data to the company for further evaluation.