CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024

DateRun: 06/10/2024

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ClientType: Manufactures parts for Semi-Conductor Industry

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Buffing/Polishing Compounds, Oil

Cleaning Methods:

Analytical Methods: Gravimetric

Purpose: Preliminary testing of potential alternative cleaners to determine efficacy in removing buffing compound and castor oil.

Experimental Procedure: Three pe-weighed coupons were chosen per soil per cleaner were used for a total of eighteen coupons. Half the coupons were soiled with tripoli buffing compound by holding the buffing compound over a heat gun until it was melted enough to spread on the bottom third of each coupon. The other half of coupons were soiled with castor oil by applying the oil to the bottom third of the coupons with a swab. The dirty weights of the coupons were then recorded. Each coupon was subjected to heated ultrasonics for 20 mins in their respective cleaner. These cleaners are Micro 90 2% 150F, Mirachem 500 20% 140F, and Waterworks Heavy Duty Degreaser 20% 120F. After being cleaned, the coupons were dried in the convection oven for 10 minutes at 200F. After drying, the clean weights of the coupons were recorded.

Results:

Cleaner	Soil	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
Micro 90	Buffing Compund	0.5824	0.3062	47.42	52.10	43.21
		0.1094	0.0399	63.53		
		0.2932	0.1602	45.36		
	Castor Oil	0.3659	0.3498	4.40	34.33	
		0.7637	0.5760	24.58		
		0.0804	0.0209	74.01		
Mirachem 500	Buffing Compund	0.0795	0.0311	60.88	35.33	61.35
		0.4311	0.2630	38.99		
		0.4458	0.4186	6.10		
	Castor Oil	0.0306	0.0042	86.27	87.38	
		0.0453	0.0047	89.62		
		0.0516	0.0071	86.24		
Waterworks	Buffing Compund	0.0276	0.0080	71.01	86.63	75.49
		0.0481	0.0043	91.06		
		0.0367	0.0008	97.82		
	Castor Oil	0.0464	0.0190	59.05	64.35	
		0.0404	0.0182	54.95		
		0.0296	0.0062	79.05		

Summary:

Conclusion: The micro 90 2% 150F was not successful in removing either soil. The Mirachem 500 20% 140F was successful in removing the castor oil but not the buffing compound. The Waterworks Heavy Duty Degreaser 20% 120F was successful in removing the buffing compound, but not the castor oil.