CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2005

DateRun: 07/27/2005

Experimenters: Jason Marshall

ClientType: Metal

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Mold Releases, Graphite

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate selected cleaners for the removal of graphite based colloidal mold release agent.

Experimental Procedure: Seven products were selected based on similar testing from the laboratory's database of test results. Five alkaline products were diluted to 5% using DI water in 600 ml beakers. Two acidic products were also selected. One product was diluted to 6% and the second was diluted to 20% based on vendor recommended concentrations. Water was also evaluated. All eight beakers were heated to 130 F on a hot plate.

Eighteen preweighed aluminum coupons were coated with the Acheson Colloids Co Aquadag M mold release agent (CAS#: 7782-42-5, 84122-50-6, 70131-67-8, 1333-86-4, 107-21-1, 9002-84-0). The mold release was initially dried for 5 minutes using a Master Appliance Heat Gun at 500 F. The coupons were then subjected to another 10 minutes of drying. Coupons were allowed to sit overnight, followed by 2 hours of drying in an oven at 500 F. After the drying, coupons were allowed to cool to room temperature and weighed a second time to determine the amount of soil added to the coupons.

Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. Coupons were rinsed in a tap water bath for 15 seconds at 120 F and dried using compressed air blow off at room temperature for 30 seconds. Final weights were recorded and efficiencies were calculated.

Results: A couple of products removed over 50% of the soil and another three removed over 20%. The table below lists the amount of soil added, the amount remaining and the efficiency for each coupon.

Cleaner	Initial wt	Final wt	% Removed
815 GD	0.0014	0.0014	0.00
	0.0030	0.0021	30.00
	0.0014	0.0009	35.71
SC Aircraft & Metal	0.0027	0.0027	0.00
	0.0037	0.0036	2.70
	0.0013	0.0013	0.00
Micro 90	0.0048	0.0023	52.08
	0.0036	0.0031	13.89
	0.0063	0.0057	9.52
Inproclean 3800	0.0067	0.0030	55.22
	0.0078	0.0039	50.00
	0.0031	0.0016	48.39
Polyspary Jet 790 P	0.0112	0.0090	19.64
	0.0020	0.0017	15.00
	0.0018	0.0017	5.56
Citranox	0.0125	0.0053	57.60
	0.0020	0.0019	5.00
	0.0054	0.0047	12.96
Coil Bright	0.0092	0.0027	70.65
	0.0027	0.0016	40.74
	0.0080	0.0024	70.00
Water	0.0049	0.0047	4.08
	0.0118	0.0095	19.49
	0.0032	0.0031	3.12

Summary:

CLEANING LABORATORY EVALUATION SUMMARY

Substrates:	Aluminum
Contaminants:	Mold Releases, Graphite

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Formula 815 GD	5	21.90	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	0.90	☐	
International Products Corporation	Micro 90 Conc.	5	25.17	☑	
Oakite Products	Inproclean 3800	5	51.20	☑	
US Polychem Corporation	Polyspray Jet 790 P	5	13.40	☐	
Alconox Inc	Citranox	6	25.19	☑	
Watson Technical Associates	Coil Bright	20	60.46	☑	
Water	Water	100	8.90	☐	

Conclusion: The five products that showed some cleaning will be retested using ultrasonic cleaning.