CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2005

DateRun: 09/08/2005

Experimenters: Jason Marshall

ClientType: Metal

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Part

Contaminants: Graphite

Cleaning Methods: Ultrasonics

Analytical Methods: Photography, Visual

Purpose: To evaluate more products at various concentrations for graphite removal from aluminum parts.

Experimental Procedure: Two formulations of one product were selected for testing based on past testing and vendor recommendation. The two DFC 30 formulations were mixed at 50%/50% 5%/50%, 25%/25%. Metal Bright was evaluated at 25, 50 and 100%. Alukleen 36 was introduced for testing based on potential brightening of aluminum. It was tested at 10%. Each solution was suspended in water heated to 130 in a Crest Ultrasonic 40 kHz tank. The solutions were degassed for five minutes.
One presoiled baked coupon 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) was suspended in each solution and cleaned for 10 minutes using ultrasonic energy. Parts were then rinsed with tap water at 120 F for 15 seconds and dried using compressed air at room temperature for 30 seconds. Cleaned parts were then visually inspected and compared to each other. In addition, the parts were also compared to the client supplied cleaned parts.

Results: The mixture of the two DFC 30 did not yield bright parts. The 50/50 mix was the best with parts near the acid washed part. The Metal Bright 25% did not work to well. The 50% worked well after about 7 minutes leaving the part brighter than the acid wash part. The 100% Metal Bright worked well after 5 minutes of cleaning. The Alukleen 36 did not do very well. It removed most of the graphite but provided no shine. Photographs of the cleaned parts are provided below.

Summary:

Substrates:	Aluminum				
Contaminants:	Graphite				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Cogent Environmental Solutions	DFC 30 Mold Release	50	0.00	☐	Mixed with DFC 30
Cogent Environmental Solutions	DFC 30	50	0.00	☐	
Green Power	Metal Bright	25	0.00	☐	
Green Power	Metal Bright	50	0.00	☑	
Green Power	Metal Bright	100	0.00	☑	
Heatbath Corporation	Alu-Kleen 36	10	0.00	☐	

Conclusion: Metal Bright at the higher concentrations worked very well and could possible be considered for a Coil Bright substitute.