CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 03/27/2008

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Machining Company

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Inks

Cleaning Methods: Manual Wipe

Analytical Methods: Visual, Timing

Purpose: To evaluate the sixth supplied ink on the top products.

Experimental Procedure: The top ten products from the previous trial were used at full strength and room temperature. Twenty preweighed coupons were coated with the supplied Avery Marks-A-Lot permanent marker (black). Once dry, a second weight was recorded to determine the amount of ink added to the coupon. As in the last trial, two coupons were used per cleaning alternative. A handheld swab was immersed into the cleaning product and then manual wiped across the coupon for up to one minute. Following the cleaning, the coupons was wiped dry for 5 seconds. Observations were made, final coupon weights recorded, and the average efficiencies were calculated.

Results: As was the case for the blue Sharpie marker, due to the limited weight added by the black permanent marker, gravimetric analysis yielded inconclusive results. Therefore, analysis was performed based on visual rankings and length of time needed to clean the coupons. Products were considered successful in they removed the ink in under one minute of cleaning.

Nine of ten products removed all of the ink in under 10 seconds. The 10th product removed almost all of the ink after 60 seconds. The table below lists the time required to clean and the observations made.

Cleaner	Time	Visual
Soy Clear 1500	>60	Nearly all removed
Ink Zapper	7	All removed
Methyl Ester 1618	6	All removed
Citrus Soy Solvent Cleaner & Degreaser	9	All removed
Graffiti Remover SAC	5	All removed
BioRenewables Industrial Degreaser	5	All removed
EP 921	6	All removed
BG Solv 717 Ink & Graffiti Cleaner	3	All removed
Graffiti remover	4	All removed
Smart Solve 605	6	All removed

Summary:

Substrates:	Aluminum
Contaminants:	Inks

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
AG Environmental Products	Soy Clear 1500	100	0.00	☐	
Vertec BioSolvents	Ink Zapper	100	0.00	☑	
Twin Rivers Technologies	Methyl Ester 1618	100	0.00	☐	
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	100	0.00	☑	
Spartan Chemical Company	Graffiti Remover SAC	100	0.00	☑	
Spartan Chemical Company	BioRenewables - Restroom Cleaner	100	0.00	☑	
Inland Technologies Inc	EP 921	100	0.00	☑	
		100	0.00	☑	

CLEANING LABORATORY EVALUATION SUMMARY

BioGenesis Enterprises Inc	BG Solv 717 Ink & Graffiti Cleaner				
Finger Lakes Chemical	Graffiti remover	100	0.00	☑	
United Laboratories International	Smart Solve 605	100	0.00	☑	

Conclusion: Following successful laboratory testing of multiple products on the various inks, the next step will be to select products for on-site piloting.