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:	Gravimetric
Purpose:	To evaluate top products on third supplied ink.
Experimental Procedure:	The top ten successful products from the previous trial were used at full strength and room temperature. Twenty preweighed coupons were coated with the supplied Nu Mark Company NU-Mark marker (black ink). 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:	Even though some of the calculated efficiencies were below 85%, all products evaluated removed all of the ink from the aluminum coupons in under 20 seconds. Some of the lower efficiencies may have been the result of the cleaners leaving behind a residue after cleaning. A further wiping of the coupons with a dry towel could take care of any residue. The table below lists the amount of ink applied, the amount remaining, the efficiency and the time needed to clean the ink.

Cleaner	Initial wt	Final wt	% Removed	Time
Soy Clear 1500	0.0038	0.0019	50.00	10
	0.0033	0.0022	33.33	
Ink Zapper	0.0046	0.0010	78.26	10
	0.0053	0.0010	81.13	
Methyl Ester 1618	0.0050	0.0012	76.00	12
	0.0068	0.0018	73.53	
Citrus Soy Solvent Cleaner & Degreaser	0.0058	0.0001	98.28	8
	0.0054	0.0005	90.74	
Graffiti Remover SAC	0.0062	0.0005	91.94	8
	0.0050	-0.0001	102.00	
BioRenewables Industrial Degreaser	0.0036	0.0018	50.00	8
	0.0030	0.0003	90.00	
EP 921	0.0026	0.0005	80.77	7
	0.0044	-0.0001	102.27	
BG Solv 717 Ink & Graffiti Cleaner	0.0045	-0.0003	106.67	6
	0.0044	0.0002	95.45	
Graffiti remover	0.0036	0.0007	80.56	7
	0.0030	0.0002	93.33	
Smart Solve 605	0.0026	0.0004	84.62	7
	0.0045	0.0011	75.56	

Summary:

Substrates:	Aluminum

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Contaminants:	Inks				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
AG Environmental Products	Soy Clear 1500	100	41.67	☑	
Vertec BioSolvents	Ink Zapper	100	79.70	☑	
Twin Rivers Technologies	Methyl Ester 1618	100	74.76	☑	
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	100	94.51	☑	
Spartan Chemical Company	Graffiti Remover SAC	100	96.97	☑	
Spartan Chemical Company	BioRenewables - Restroom Cleaner	100	70.00	☑	
Inland Technologies Inc	EP 921	100	91.52	☑	
BioGenesis Enterprises Inc	BG Solv 717 Ink & Graffiti Cleaner	100	101.06	☑	
Finger Lakes Chemical	Graffiti remover	100	86.94	☑	
United Laboratories International	Smart Solve 605	100	80.09	☑	

Conclusion: All ten products will be used on the next supplied ink.