CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	01/15/2009
Experimenters:	Jason Marshall, Daniel Pina
ClientType:	Wire & Cable Mfr
ProjectNumber:	Project #2
Substrates:	Galvinized Steel
PartType:	Coupon
Contaminants:	Inks
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate products on ink removal from galvanized steel using manual wiping.
Experimental Procedure:	Seven products that were previously tested for client were based on performance. Each product was used at full strength and room temperature. Twenty-one preweighed galvanized steel coupons were coated with the supplied blue ink and allowed to dry. A second weighing was performed to determine the amount of ink added. Three coupons were placed into a Gardner Straight Line Washability unit. A 2-3 mL was applied to the coupons using a squeeze bulb. A Kimberly Clark Wypall X60 reinforced wiper was placed into the cleaning sled and also soaked with the cleaning solution. The machine was run for 30 seconds (~20 cycles), blotted dry with a fresh towel and weighed a final time to determine the effectiveness after 30 seconds. A second 30 second cleaning process was performed on the coupons to determine effectives after one minute of cleaning.
Results:	Cleaning after 30 seconds had limited to moderate success for the seven products tested.

Cleaner	Initial wt	Final wt	% Removed
DBE 6			
	0.0471	0.0293	37.79
	0.0457	0.0301	34.14
	0.0648	0.0350	45.99
Soy Gold 1100			
	0.0461	0.0458	0.65
	0.0304	0.0300	1.32
	0.0585	0.0181	69.06
Shopmaster RC			
	0.0451	0.0199	55.88
	0.0392	0.0136	65.31
	0.0525	0.0095	81.9
SC Soyester			
	0.0569	0.0203	64.32
	0.0448	0.0167	62.72
	0.0378	0.0263	30.42
Graffiti Remover SAC			
	0.0624	0.0292	53.21
	0.0549	0.0190	65.39
	0.0461	0.0190	58.79
Smart Solve 605			
	0.0528	0.0421	20.27
	0.0430	0.0246	42.79
	0.0532	0.0328	38.35
Bean e Doo			
	0.0506	0.0316	37.55
	0.0422	0.039	7.58
	0.0400	0.0321	19.75

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The additional 30 seconds improved efficiencies by 5-30% for the various products. The overall efficiencies were calculated for the full one minute of cleaning. The final removal rates were based on the data in the next table.

Cleaner	Initial wt	Final wt	% Removed
DBE 6			
	0.0471	0.0224	52.44
	0.0457	0.0250	45.30
	0.0648	0.0237	63.43
Soy Gold 1100			
	0.0461	0.0448	2.82
	0.0304	0.0226	25.66
	0.0585	0.0164	71.97
Shopmaster RC			
	0.0451	0.0104	76.94
	0.0392	0.0065	83.42
	0.0525	0.0042	92.00
SC Soyester			
	0.0569	0.0138	75.75
	0.0448	0.0134	70.09
	0.0378	0.0259	31.48
Graffiti Remover SAC			
	0.0624	0.0054	91.35
	0.0549	0.0053	90.35
	0.0461	0.0021	95.44
Smart Solve 605			
	0.0528	0.0259	50.95
	0.0430	0.0116	73.02
	0.0532	0.0219	58.83
Bean e Doo			
	0.0506	0.0184	63.64
	0.0422	0.0324	23.22
	0.0400	0.0243	39.25

Summary:

Substrates:	Galvinized Steel
Contaminants:	Inks

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Invista S.a.r.l	Flexisolv DBE 6 ester	100	53.72	☑	
AG Environmental Products	Soy Gold 1000	100	33.48	☐	
Buckeye International	Shopmaster RC	100	84.12	☑	
Gemtek Products	SC Soyester	100	59.11	☑	
Spartan Chemical Company	Graffiti Remover SAC	100	92.38	☑	
United Laboratories International	Smart Solve 605	100	60.93	☑	
Franmar Chemical	Bean-e-doo (Parts Washer Solvent)	100	42.03	☐	

Conclusion: The effective products will be evaluated on the supplied galvanized steel wire housing with ink markings.