CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2011
DateRun:	05/02/2011
Experimenters:	Heidi Wilcox, Junhee Cho, Johnny Le
ClientType:	Bicycle Manufacturer
ProjectNumber:	Project #2
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Inks
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual
Purpose:	To find a substitute for Acetone in current process
Experimental Procedure:	Four cleaners were selected from the lab's on-line database, www.cleanersolutions.org, based on past testing results matching client supplied information. All products were used at full strength as well as the clients current cleaner. Each solution used at room temperature and cleaning was done with a wiping process. Three coupons for each cleaner were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped also following the procedure the company uses in their manufacturing process. (They were not wire brushed though like in the manufacturing process.) Final weights for the cutting fluid and visual observations were taken for the sharpie coupons. Observations and efficiencies were recorded.
Results:	All five cleaners resulted in more than 90% removal of the contaminant. The table below shows the amounts of soil added and removed by each cleaning solution.

Gravimetric Table				
Cleaner	Initial wt	Final wt	% Removed	Observations for Sharpie Removal
Acetone (current)	48.182	48.1856	95.62	Removed sharpie well
	48.0134	48.0151		No residue, dried fast.
	47.8607	47.8624		
Bio T Max	48.12	48.1238	96.09	Took longest to remove Sharpie
	47.9842	47.9874		No residue seen, dried fast
	48.0651	48.0672		
Dysol 108	48.0414	48.0434	97.37	Removed Sharpie well
	47.8926	47.8943		No residue seen and dried fast
	48.1616	48.1636		
Ez Solv	47.9728	47.9727	100.36	Removed Sharpie well
	48.0621	48.0619		Left visible residue, long to dry
	48.1526	48.1522		May be fine with extra dry wiping before weld
BIO-SOLV	48.1108	48.1114	98.95	Removed Sharpie well

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	48.1453	48.1462		No visible residue, dried well.
	47.7649	47.7656		

Summary:

Substrates:	Stainless Steel				
Contaminants:	Cutting/Tapping Fluids, Inks				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bio Chem Systems	Bio T Max	100	0.00	☑	
Dysol	DS 108 F Wipe Solvent	100	96.09	☑	
Gemtek Products	SC EZ Solv Safety Solvent	100	100.36	☑	
Phoenix Resins Inc	BioSolv	100	98.95	☑	

Conclusion: