CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1995
DateRun:	12/21/1995
Experimenters:	Jay Jankauskas
ClientType:	Adhesive Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Adhesive
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual
Purpose:	Various safer solvents to be tested
Experimental Procedure:	The purpose of this experiment is to find a cleaner for Adhesive Manufacturer that will replace their current 4:1 heptane-toluene mixture. So far, attempts with aqueous cleaners and semi-aqueous terpenes have proven unsuccessful. Various solvents that are safer than the current Adhesive Manufacturer cleaning solution will be tested. Durotac Adhesive was applied to the 316 stainless steel coupons. Sitting times of the adhesive was between 10 and 15 minutes. Cleaning would be accomplished by first applying some cleaning chemistry (100%) onto the contaminated coupons and allowing to sit for about 30 seconds. The adhesive was then removed with a scouring pad. Time and ease of removal was noted. All chemistries were used at room temperature. SUBSTRATE MATERIAL: 316 Stainless Steel Coupons CONTAMINANTS: Duro-Tac toluene-heptane based adhesive CONTAMINATING PROCESS USED: Adhesives applied on with swab and allowed to sit for 10 minutes to 15 minutes
Results:	The cleaners tested and the results are shown in the table below:

Cleaning Chemistry	Time of removal (sec)	Notes
Brulin Corp. Compliance	50	Pretty good removal
AW Chesterton 803 Solvent	70	
Ausimont USA Inc Perfluorosolv PFS-1	80	Very tough to remove
Ashland Chemical Co Solvent 6733	DNC	
ISP Tech N-Methyl 2-Pyrrolidone	DNC	
Solvent Kleene, Inc. Degrease 500	40	Dissolves at first, but leaves a tacky
CSA Inc. Biosafe 1023	35	Not as effective as the 1024
CSA Inc. Biosafe 1024	25	Not much dissolving action, but Adhesive rolls off easily
Bush-Allen-Boake K-312	45	Dissolves but leaves a film that is tough to remove
Dow Development Solvent 40570	65	Surface still quite tacky
Dow Development Solvent 40571	35	Very clean surface

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Dow Development Solvent 40579	45	No residue left
Toluene	30	Tacky residue left

Summary:

Substrates:	Stainless Steel
Contaminants:	Adhesive

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Compliance	100	0.00	☐	
AW Chesterton	803 Industrial & Marine Solvent II	100	0.00	☐	
Ausimont USA Inc	Perfluorosolv PFS 1	100	0.00	☐	
Ashland Specialty Chemical Company	Solvent 6733	100	0.00	☐	
EcoLink	Safe Strip	100	0.00	☐	
Transene Company, Inc.	D Greeze 500 LO	100	0.00	☐	
CSA Inc	Bio Safe 1023	100	0.00	☑	
CSA Inc	Bio Safe 1024	100	0.00	☑	
Bush Boake Allen Inc	BBA Solvent K312	100	0.00	☐	
Dow Chemical Company	XUS 40570 Development Solvent	100	0.00	☐	
Dow Chemical Company	XUS 40571 Development Solvent	100	0.00	☑	
Dow Chemical Company	XUS 40579 Development Solvent	100	0.00	☑	
EM Science	Toluene	100	0.00	☐	

Conclusion:

The Bio-Safe 1023 does a good job of lifting the adhesives. One last experiment will be to try mixtures of the most successful terpenes and aqueous products. Most of the terpenes will dissolve the adhesive to some degree but leave a sticky residue that does not peel off. The aqueous products are just the opposite, they cause no dissolving action, but the adhesive peels off pretty easy after a while. A combination of these traits may be most effective.