CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1995
DateRun:	06/13/1995
Experimenters:	Donald Garlotta, Jay Jankauskas
ClientType:	Biomedical Device Manufacturer
ProjectNumber:	Project #1
Substrates:	Plastic
PartType:	Part
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Fingerprints, Oil
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric, Waterbreak
Purpose:	Evaluate effectiveness of Innovative Organics SC11
Experimental Procedure:	The SC 11 was dilute to the highest and lowest recommended concentrations (2% and 5%). Cleaning was performed in a Crest ultrasonic unit for 15 minutes at 140 F. The parts were then rinsed in a tap water bath and a DI water bath, both rinses were for 2 minutes at 140 F. The parts were then dried under air knives for 2 minutes and under a heat gun for 5 minutes. All parts were analyzed gravimetricaly to determine a percentage of the oil removed. They were also inspected visually for any spotting or oil residue.

CLEANING CONDITIONS:

	Temperature		
	time (min)	2% solution	5% solution
Crest Ultrasonics	15	130	139
#1 RINSE/TAP H_2O	2	144	144
#2 RINSE/ DEIONIZED H_2O	2	80	80
DRY air knives	2	room	room
DRY heat gun	2	180	180
COOL DOWN	overnight	room	room

Results:

GRAVIMETRIC ANALYSIS

2% Innovative Organics SC11

sample # and substrate	clean mass (g)	mass with contamination (g)	mass after cleaning (g)	contaminant removed (g)	Percent Removal
#1- Clear PC	12.2447	12.2614	12.2462	0.0152	91.02%
#2- Clear PC	12.3846	12.3914	12.3860	0.0054	79.41%
#1- Clear ABS	11.1069	11.1225	11.1111	0.0114	73.08%
#1- White PC	12.8904	12.9270	12.8926	0.0344	93.99%

5% Innovative Organics SC11

sample # and substrate	clean mass (g)	mass with contamination (g)	mass after cleaning (g)	contaminant removed (g)	Percent Removal
#3- Clear PC	11.6793	11.6836	11.6813	0.0023	53.49%
#4- Clear PC	14.0436	14.0543	14.0457	0.0086	80.37%

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#2-Clear ABS	11.7887	11.7925	11.7927	-0.0002	-5.26%
#2-White PC	13.2548	13.2963	13.2576	0.0387	93.25%

Quite a bit of oil was still left on most of the parts. Gravimetric analysis shows that there was a lousy removal on most parts and water beaded up on surface of the parts indicating oil buildup. On a brighter note, there were no water spots on the parts after drying it appears that the cold DI rinse solved the problem of spotting that was encountered in previous trials.

Summary:

Substrates:	Plastic				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Fingerprints, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Innovative Organics Inc	Amberclean SC 11	2	84.00	☐	
Innovative Organics Inc	Amberclean SC 11	5	75.00	☐	

Conclusion: Innovative Organics is ineffective and shouldn't be considered by Biomedical Device Manufacture