

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000
 DateRun: 01/03/2000
 Experimenters: Jason Marshall, Nicole Vayo
 ClientType: Chemical Light mfr
 ProjectNumber: Project #1
 Substrates: Glass/Quartz
 PartType: Coupon
 Contaminants: Phthalates
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Black light
 Purpose: To find an cleaning solution that will remove all of the two contaminants and reduce the amount of waste generated.

Experimental Procedure: Five cleaning chemistries were selected based on the lab's Industrial Cleaning Survey: Directory of Vendors database. A sixth cleaner was used based on the client's current cleaning system. All six products were diluted to 2% by volume in 600 ml beakers using DI water. The beakers were heated to 120 F on a hotplate. Eighteen precleaned coupons were contaminated using a mixture of the two components using a small plastic eye dropper. Coupons were allowed to sit for a couple of hours, periodically heated with a Master Appliance Corp, Hot-air gun model HG-301A at 500oF. Three coupons were cleaned per cleaning solution for three minutes. A single tap water rinse was used for 30 seconds at 120 F. Drying was at room temperature for 10 minutes. Coupons and rinse water were both analyzed under the black light in a chamber. Each set of coupons were compared to each other. Analysis was performed by two lab staff members.

SUBSTRATE MATERIAL: Glass coupons
 CONTAMINANTS: Oxalate ether compound (75-65-0, 131-11-3, 7722-84-1); Activator compound (84-74-2)
 CONTAMINATING PROCESS USED: Coupons were coated with mix of both chemicals

Results: Two products were very effective in removing the combination of the two contaminants. One was the currently used cleaner, Micro 90 and the other was SWR One. The SWR One product appeared to be slightly better than the Micro 90. Table 2 ranks the cleaners and lists the observations made. Ranking was based on effectiveness of cleaning as well as rinse water analysis.

PRODUCT	RANKING	OBSERVATION
SC 1000	5	Not as bad as Luminox, small amounts of contamination in rinse water
ND 17	3	Better than SC 1000, less than base line (Micro 90), small amounts in rinse water
SWR One	1	Equal to, slightly better than baseline, no contamination in rinse
Luminox	6	Very little removal, rinse water had as much contamination as cleaning solution
Micro 90	2	Some spots on coupon, little contamination in rinse water
All Purpose	4	Cleaned as well as ND 17, more contamination in rinse water than ND 17

Summary:

Substrates:	Glass/Quartz				
Contaminants:	Phthalates				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Gemtek Products	SC 1000 Aqueous Cleaner Concentrate	2	5.00	<input type="checkbox"/>	Rank

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MacDermid Industrial Products	ND 17	2	3.00	<input type="checkbox"/>	Rank
SWR Corporation	SWR One	2	1.00	<input checked="" type="checkbox"/>	Rank
Alconox Inc	Luminox	2	6.00	<input type="checkbox"/>	Rank
International Products Corporation	Micro 90 Conc.	2	2.00	<input checked="" type="checkbox"/>	Rank
Safe Science Inc	Safe Science All Purpose (Industrial)	2	4.00	<input type="checkbox"/>	Rank

Conclusion:

Micro 90 and SWR One were both very effective in cleaning the contamination mix from the coupons. The other semi-effective cleaners may be further evaluated at higher concentrations. The next test will be run to determine a method to track bath life.