CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1999

DateRun: 06/07/1999

Experimenters: Jason Marshall

ClientType: Department of Public Works

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil

Cleaning Methods:

Analytical Methods: Gravimetric

Purpose: To evaluate client requested cleaner for the removal of specified CAS#s.

Experimental Procedure: One cleaning chemistry was prepared according to the suppliers recommend concentration of 1:13 using DI water. The solution was heated to 105 F in a 400 mL beaker on a hot plate.
Six preweighed coupons were contaminated with the oil mixtures and weighed again. Three coupons were cleaned in the solution for five minutes using stir-bar-agitation and three were cleaned for a longer period of time (to be determined during cleaning cycle ranging from 6-10 minutes). The supplier suggested the increased cleaning time due to the nature of the product. After cleaning the coupons were rinsed in tap water at 120 F for 30 seconds and dried using a Master Appliance Corp, Hot-air gun model HG at 500 F for one minute. Final weights were recorded and cleaning efficiencies were calculated for the two cleaning times.

SUBSTRATE MATERIAL: Steel Coupons (202-1010-B79)
CONTAMINANTS: Oil: W.A Wood Co W-373 (CAS #s 64741-44-2, 64742-53-6, 64742-52-5); Castrol GTX Motor Oil SAE 10W-40 (CAS #s 64742-41-2, 64741-88-4, 64742-01-4, 64742-46-7, 64742-54-7, 64742-56-9, 64742-57-0, 64742-62-7, 64742-65-0, 72623-83-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1)
CONTAMINATING PROCESS USED: The two oils were mixed together, using more of the Castrol oil. The mixed oil was then brushed onto coupons using a hand-held swab.

Results: The ForBest product appeared to be very effective in removing most of the contaminant within the five-minute cleaning time. The second set of coupons were found to almost completely cleaned after an additional minute of cleaning. Table 1 lists the cleaning efficiencies for both cleaning times.

Table 1. Cleaning Efficiency

Product	Sea Wash 700	
Time	5 min	6 min
Coupon 1	82.34	99.91
Coupon 2	87.25	98.32
Coupon 3	94.72	98.84
Ave	88.1	99.02
Std Dev	6.23	0.81

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Warren Chemical Company	Sea Wash 700 Old	8	99.02	☑	

Conclusion: ForBest Sea Wash 700 was effective in removing oil mixture from the steel coupons within five to six minutes of stir-bar-agitation cleaning at 105 F.