CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2000
DateRun:	06/12/2000
Experimenters:	Jason Marshall, Nicole Vayo, John Brunelle
ClientType:	State Agency
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Coupon
Contaminants:	
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric, Photography, Visual
Purpose:	To evaluate products for corrosion potential of steel drums.

Experimental Procedure:

The four products were selected based on environmental indicators for potential replacement cleaners in parts cleaning. Non diluted solutions were poured into 600 ml beakers. Three preweighed steel coupons were placed into each product. The coupons soaked at room temperature for five days. During the time period, observations were made about the surface condition of the coupons. At the end of the five days, coupons were removed from the beakers and photographs were taken using a Kodak digital science DC260 Zoom Camera and observations were recorded. Following the initial photograph, coupons were rinsed in tap water for 30 seconds and wiped dry with paper towel. A second picture was taken and final weights were measured. The chemistries used are listed in Table 1.

Table 1. Cleaning Products
COMPANY PRODUCT
Envirosolutions, Inc. Bio T V-50
Ensolve Systems Grease Feast
North Atlantic Bio-Industries NAB 9000
Hazwell ForBest Sea Wash 8

SUBSTRATE MATERIAL: Steel 202 ZP (SAE-1020CR)
CONTAMINANTS: None

Results:

Figure 1 displays the three stages of the corrosion testing.

Figure 1. Coupon Conditions

Pre-soak	V-50	Grease Feast	NAB 9000	Sea Wash 8
With Out Rinse	V-50	Grease Feast	NAB 9000	Sea Wash 8
With Rinse	V-50	Grease Feast	NAB 9000	Sea Wash 8

The V-50 and Sea Wash 8 were the only ones to not show visible signs of damaging the steel coupons. The NAB 9000 formed a white residue on the coupons within one day of soaking. Grease Feast generated a yellow residue after five days.

Gravimetric analysis revealed that all four cleaners lowered the weights of the coupons. The V-50 was caused the greatest weight change. However, the weight changes did not appear to be the result of any damage to the parts. In fact, the coupons looked cleaner after soaking in the V-50 and Sea Wash 8 products. Table 2 lists the pre- and post-weights of the steel coupons for all four cleaners.

Table 2. Corrosion Test Weights

Cleaner	Coupon	Initial Weight	Final Weight	Weight Loss
V-50	9	32.0396	31.8458	0.1938
	10	31.8058	31.5355	0.2703
	11	31.9825	31.7037	0.2788
Grease Feast	13	31.9642	31.948	0.0162
	14	32.1115	32.0968	0.0147
	15	32.0391	32.029	0.0101
NAB 9000	16	31.952	31.9189	0.0331
	17	32.0899	32.0521	0.0378
	18	32.2124	32.1770	0.0354

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Sea Wash 8	19	32.1251	32.0903	0.0348
	20	31.7378	31.7150	0.0228
	21	31.9352	31.9073	0.0279

Summary:

Substrates:	Steel
Contaminants:	

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Bio Chem Systems	Bio T V 50	100	0.00	☑	no damage
Ensolve Biosystems Inc	Grease Feast Plus	100	0.00	☐	
North Atlantic Bio Industries	NAB 9000	100	0.00	☐	
Warren Chemical Company	Sea Wash 8 No Force	100	0.00	☑	no damage

Conclusion:

From the visual observations made, both Envirosolutions V-50 and ForBest Sea Wash 8 did not cause damage to the steel surfaces. Ensolve Systems Grease Feast and North Atlantic Bio Systems NAB 9000 were not compatible with steel for extended periods of time.