CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1999
DateRun:	08/16/1999
Experimenters:	Jason Marshall, Nicole Vayo
ClientType:	Department of Public Works
ProjectNumber:	Project #1
Substrates:	Aluminum, Copper, Nickel, Stainless Steel
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate client requested cleaners based on Vendor supplied information.
Experimental Procedure:	The cleaners used were diluted to 5% using DI water in 600 ml beakers. Cleaning of the coupons was performed using stir-bar agitation at room temperature for five minutes. Coupons were rinsed using tap water at 120 F for two minutes and dried at room temperature for two hours. Gravimetric analysis was used to determine effectiveness.

SUBSTRATE MATERIAL: Aluminum Coupons (202-2024 T-3), Nickel/Copper Coupons (202-715), Stainless Steel Coupons (202-316B-80)
CONTAMINANTS: Table 1 lists the contaminants and their CAS#s
Table 1. Contaminants Used

Aluminum	202-2024 T-3
	202-7075 T-6
Stainless Steel	202-410 B-85
Brass	202-260
Cold Rolled Steel	202-1020

CONTAMINATING PROCESS USED: All contaminants were applied to coupons using handheld swabs.

Results: The all-purpose cleaner was very successful in removing the grease and oil. The cleaner was only moderately capable of cleaning the lubricant and unsuccessful in removing the ink. The industrial degreaser was only effective in removing the grease. This cleaner was only partially able to remove the lubricant and oil and had no success in cleaning the ink. Table 2 lists the cleaner and the calculated efficiencies for each contaminant.

Table 2. Cleaning Product Results by Substrate and Contaminant

Hoofmark All Purpose Cleaner			
Substrate	Substrate ID #	Contaminant	Efficiency
Aluminum	202-2024 T-3	grease	100
Aluminum	202-2024 T-3	lubricant	75
Nickel/ Copper	202-715	ink	2
Stainless Steel	202-316B-80	oil	93
Hoofmark Industrial Degreaser			
Substrate	Substrate ID #	Contaminant	Efficiency
Aluminum	202-2024 T-3	grease	91

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Aluminum	202-2024 T-3	lubricant	68
Nickel/ Copper	202-715	ink	1
Stainless Steel	202-316B-80	oil	61

Summary:

Substrates:	Aluminum, Copper, Nickel, Stainless Steel
Contaminants:	Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
New Pig Corporation	Hoofmark All Purpose Cleaner & Degreaser	5	100.00	☑	grease
New Pig Corporation	Hoofmark All Purpose Cleaner & Degreaser	5	75.00	☐	lubricant
New Pig Corporation	Hoofmark All Purpose Cleaner & Degreaser	5	2.00	☐	ink
New Pig Corporation	Hoofmark All Purpose Cleaner & Degreaser	5	93.00	☑	oil
New Pig Corporation	Hoofmark Industrial Degresaser	5	91.00	☑	grease
New Pig Corporation	Hoofmark Industrial Degresaser	5	68.00	☐	lubricant
New Pig Corporation	Hoofmark Industrial Degresaser	5	1.00	☐	ink
New Pig Corporation	Hoofmark Industrial Degresaser	5	61.00	☐	oil

Conclusion:

Partial success was obtained for each of the two cleaners evaluated. Both were effective in removing the grease. The all-purpose cleaner was also successful in removing the oil. All other contaminants were less than 75% cleaned from the substrates.