

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998
 DateRun: 05/31/1998
 Experimenters: Jason Marshall
 ClientType: State Highway Department
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
 Cleaning Methods:
 Analytical Methods: Gravimetric
 Purpose: Compare selected cleaners to current cleaner

Experimental Procedure: The 3 oils were selected in order to match the contaminants encountered by the client. Table 1 list CAS #s of the 3 oils and compares them to the client oils.

Table 1 CAS#'s of Selected Oils.

NAME	CAS #	GEAR OIL	TRACTOR	MOTOR
Citgo Sliderite 220	64742-52-5			
	64742-01-4	X		
	64742-62-7	X		
Citgo Cutting	64741-89-5		X	
Oil 120	64742-65-0		X	
Citgo Cutting	64742-65-0		X	
Oil 425	64741-88-4	X	X	X
	64741-89-5		X	
	64742-54-7		X	X

Each oil was applied to pre-weighed aluminum coupon. The coupons were placed in an oven for 20 minutes at 160 F. Coupons were allowed to cool to room temperature and weighed again. Three coupons were placed in each cleaner for two minutes with stir bar agitation at room temperature. Coupons were then rinsed in tap water for 30 seconds also at room temperature. Parts air dried and then weighed one more time.

SUBSTRATE MATERIAL: Al-202-6061 T-4
 CONTAMINANTS: Citgo Cutting Oils 425 & 120, Sliderite 220
 CONTAMINATING PROCESS USED: Applied the oils using a swab.

Results: Three products had a cleaning efficiency above 90%. One was the current cleaner Zep and the other two were SolSafe 245 and Super-Neutral pH. Table 2 lists the individual coupon efficiencies as well as the average for the cleaner.

TABLE 2 Cleaner Efficiencies

CLEANERS	ZEP	BioChem	SupNeut	Soy Gold	282	232	D-Greeze
Coupon 1	98.1	98.4	88.4	83.3	56.9	41.4	84.2
Coupon 2	96.9	97.5	87.9	83	82.1	35.6	66
Coupon 3	98.3	93	95.8	85.3	49.5	58.5	80.9
Average	97.8	96.3	90.7	83.9	62.8	45.2	77
Std Dev	0.757	2.89	4.42	1.25	17.1	11.9	9.7

There are three products that may work better when heated: Super-Neutral, Daraclean 232 & 282.

Summary:

Substrates:	Aluminum				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
ZEP Manufacturing Company	Dyna 143	100	97.80	<input checked="" type="checkbox"/>	

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Bio Chem Systems	Solsafe 245	100	96.30	<input checked="" type="checkbox"/>	
Safe CleanUp Solutions	Super Neutral	10	90.70	<input checked="" type="checkbox"/>	
AG Environmental Products	Soy Gold 1000	100	83.90	<input type="checkbox"/>	
Magnaflux	Daraclean 282	10	62.80	<input type="checkbox"/>	
Magnaflux	Daraclean 232	10	45.20	<input type="checkbox"/>	
Transene Company, Inc.	D Greeze 500 LO	100	77.00	<input type="checkbox"/>	

Conclusion:

Two products may work as well as the current cleaner in cleaning automotive parts: BioChem SolSafe 245 and Safety CleanUp Super Neutral pH. The next test will use the three aqueous products. The only variation in the cleaning will be to heat the coupons to 130 F.