

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016  
DateRun: 04/06/2016  
Experimenters: Vinh Tran, Sabrina Apel  
ClientType: General  
ProjectNumber: Project #1  
Substrates: Aluminum, Brass, Stainless Steel  
PartType: Coupon  
Contaminants: Lubricating/Lapping Oils  
Cleaning Methods:  
Analytical Methods: Gravimetric

Purpose: To eliminate the use of N-Propyl Bromide in cleaning operations.

Experimental Procedure: One cleaner was tested at room temperature on aluminum, brass, and stainless-steel coupons to evaluate how Castrol Performance Bio NC Lite, Navi Guard Way Lube 32, and Water-Soluble Coolant soils were cleaned. Preweighed coupons were coated with each supplied soil using a handheld swab for each substrate and weighed a second time to determine the amount of soil added. Each cleaner was put in a beaker and three coupons were immersed into the solution for 5 minutes. The coupons were then stood upright to air dry for 15 minutes and then placed on a tray. There was no rinse. Once dry, final weights were measured and efficiency calculated for each coupon cleaned.

Results:	Contaminant	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed
	Castrol	Aluminum	0.1079	0.0005	99.54
	Performance	Aluminum	0.0728	0.0001	99.86
		Aluminum	0.0818	0.0002	99.76
		Brass	0.1257	0.0040	96.82
		Brass	0.1118	0.0018	98.39
		Brass	0.0757	0.0001	99.87
		Stainless	0.1210	0.0012	99.01
		Stainless	0.1172	0.0004	99.66
		Stainless	0.1414	0.0001	99.93
	Navi Guard	Aluminum	0.1606	0.0005	99.69
	Way Lube 32	Aluminum	0.1789	0.0002	99.89
		Aluminum	0.1692	0.0004	99.76
		Brass	0.2668	0.0008	99.70
		Brass	0.1363	0.0026	98.09
		Brass	0.1749	0.0010	99.43
		Stainless	0.2093	0.0008	99.62
		Stainless	0.2248	0.0015	99.33
		Stainless	0.2166	0.0014	99.35
	Water-Soluble Coolant	Aluminum	0.0153	0.0011	92.81
		Aluminum	0.0194	0.0009	95.36
		Aluminum	0.0094	0.0011	88.30
		Brass	0.0074	0.0010	86.49
		Brass	0.0101	0.0022	78.22
		Brass	0.0067	0.0007	89.55
		Stainless	0.0050	0.0001	98.00
		Stainless	0.0054	0.0005	90.74
		Stainless	0.0078	0.0005	93.59

Summary:	<b>Substrates:</b> Aluminum, Brass, Stainless Steel				
	<b>Contaminants:</b> Lubricating/Lapping Oils				
	<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>
	DuPont	Vertrel Sion	100	99.20	<input checked="" type="checkbox"/>
	<b>Observations:</b> Castrol Performance Bio NC Lite				

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DuPont	Vertrel Sion	100	99.43	<input checked="" type="checkbox"/>	Navi Guard Way Lube 32
DuPont	Vertrel Sion	100	0.00	<input type="checkbox"/>	Water-Soluble Coolant

**Conclusion:**

DuPont Vertrel Sion efficiently removed the three soils, Castrol Performance Bio NC Lite, Navi Guard Way Lube 32, and Water-Soluble Coolant on all three substrates at room temperature. The Castrol Performance Bio NC Lite soil with Sion was cleaned with an efficiency of 99.20%. The Navi Guard Way Lube 32 was most efficiently cleaned with Sion, with an efficiency of 90.43%. The Water-Soluble Coolant soil was least efficiently cleaned with Sion, with an efficiency of 90.34%.