

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2006																														
DateRun:	02/13/2006																														
Experimenters:	Jason Marshall																														
ClientType:	Chemical Company																														
ProjectNumber:	Project #2																														
Substrates:	Gold																														
PartType:	Coupon																														
Contaminants:	Dirt, Fingerprints, Oil																														
Cleaning Methods:	Immersion/Soak																														
Analytical Methods:	Gravimetric																														
Purpose:	To evaluate requested products for removal of light oil, dirt and fingerprints from gold coupons																														
Experimental Procedure:	<p>Two requested powdered products were made into solution by adding 3 grams of powder to 250 ml of tap water. The supplied gold coupons were weighed to establish a base line weight. The coupons were then wiped with isopropyl alcohol and weighed again to determine if the coupons were free of any contamination. When the weight of the coupons did not vary after being wiped, the true baseline weights were recorded.</p> <p>Fingerprints were then applied to the surface. Approximately 0.0005 grams of finger oil were applied to each coupon. In addition a oil-dirt mix also was applied. The oil-dirt mix consisted of 25 ml of Mobil Oil Corp Vactra Oil Light and 1.00 grams of dirt collected from a vacuum cleaner. The two components were mixed together and applied over the fingerprints using a hand held swab. Coupons were then weighed again to determine the total soil added. Three coupons were immersed in a 150 ml glass beaker filled with each solution at room temperature. Cleaning lasted for 5 minutes using stir-bar agitation. After cleaning coupons were immersed briefly (5 seconds) into a tap water rinse bath at room temperature, air dried using compressed air and then weighed to determine the amount of soil remaining. Final weights were recorded and efficiency of each cleaning solution was calculated.</p>																														
Results:	<p>One of the two products removed over 90% of the oil-dirt-fingerprint mixture after immersion cleaning at room temperature. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.</p> <table border="1"> <thead> <tr> <th>Cleaner</th> <th>Initial wt</th> <th>Final wt</th> <th>% Removed</th> </tr> </thead> <tbody> <tr> <td>Alconox</td> <td>0.0642</td> <td>0.0019</td> <td>97.04</td> </tr> <tr> <td></td> <td>0.0680</td> <td>0.0039</td> <td>94.26</td> </tr> <tr> <td></td> <td>0.0377</td> <td>0.0050</td> <td>86.74</td> </tr> <tr> <td>Tergajet</td> <td>0.0354</td> <td>0.0076</td> <td>78.53</td> </tr> <tr> <td></td> <td>0.0598</td> <td>0.0089</td> <td>85.12</td> </tr> <tr> <td></td> <td>0.0402</td> <td>0.0093</td> <td>76.87</td> </tr> </tbody> </table>	Cleaner	Initial wt	Final wt	% Removed	Alconox	0.0642	0.0019	97.04		0.0680	0.0039	94.26		0.0377	0.0050	86.74	Tergajet	0.0354	0.0076	78.53		0.0598	0.0089	85.12		0.0402	0.0093	76.87		
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Conclusion:	The Alconox powder solution removed 92% of the oil-dirt-fingerprint mix and the Tergajet removed only 80%.																														