

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998  
 DateRun: 08/04/1998  
 Experimenters: Jason Marshall  
 ClientType: Name Plate Mfg-Etching  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Carbon Deposits, Paints, Dirt  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric  
 Purpose: To further test chemistries from the first trial.

**Experimental Procedure:** Coupons were selected from previous trial based on the amount of contaminant remaining after being cleaned once. Coupons initial weights were taken from the first trial measurements. Contaminated weights were recorded. Three coupons were used for each chemistry listed below. For the two aqueous products, 15% solutions were made in 400 mL beakers using DI water. These solutions were then heated to 130 F on a hot plate. Cleaning took place for 5, 10 and 15 minutes. At the end of each cleaning time period, the coupons were rinsed in tap water at 120 F for 30 seconds and allowed to air dry. Weights were recorded after parts were dry. Once the weights were recorded, the coupons were placed back into the cleaning solution and cleaned for another 5 minutes. When the final weights were recorded, the coupons were wiped with a paper towel once. Observations and an additional weight measurements were made. The semi-aqueous product was used at 100% concentration again but this time the coupons were cleaned for 15 minutes. The one wipe with the paper towel was also performed for this cleaners as well.  
**SUBSTRATE MATERIAL:** Aluminum 3003  
**CONTAMINANTS:** Dirty cleaning solution-Naphtha w/ residual paint chips and pumice sludge

**Results:** After the first cleaning cycle of 5 minutes, the Simple Green cleaner was not tested any further due to the lack of any signs of removal. The Chrisal product showed some signs of cleaning and was moderately successful in removing the contaminant with the use of a wipe after 15 minutes. A 5% solution was also tested to compare efficiency of the increased concentration and wiping method. Soy Gold was very effective after 10 minutes of cleaning and a wipe. Table 1 lists the results of the testing performed.

Table 1. Cleaning Efficiencies

Chemistry	Simple Green			Chrisal			Chrisal	Soy Gold
Concentration	15%			15%			5%	100%
Time (min)	5	10	15	5	10	15/ Wipe	15/ wipe	10/ wipe
Results	4%	not tested	not tested	24%	17%	74%	39%	87%

**Summary:**

<b>Substrates:</b>	Aluminum				
<b>Contaminants:</b>	Carbon Deposits, Paints, Dirt				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Chrisal USA Inc	Super CMF 240	15	74.00	<input checked="" type="checkbox"/>	
Simple Green	Concentrated Industrial Strength Cleaner and Degreaser	15	4.00	<input type="checkbox"/>	
AG Environmental Products	Soy Gold 1000	100	87.00	<input checked="" type="checkbox"/>	

**Conclusion:** Since the coupons cleaned in this trial had been allowed to sit overnight, the results obtained could be considered to be a worst case scenario. If coupons or samples were cleaned when the contaminant was still wet, the cleaning efficiencies may be increased. Chrisal and AG Environmental should also be tested to determine if they would remove the sections of printed material that is supposed to remain after cleaning. Testing of sample parts obtained from the client would be necessary for this part of testing.