CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 02/24/2002

Experimenters: Jason Marshall

ClientType: Plating Job Shop

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate successful cleaners under varying operating conditions

Experimental Procedure: Two products from the previous trial were made into two concentrations, 5 and 10%, using DI water in 600 ml beakers. These dilutions were heated to two temperatures, 130 and 150 F on a hot plate. The various operating conditions used were:

Product	Conc (%)	Time (min)	Temp (F)
Surface Cleanse 930	10	10	130
Surface Cleanse 930	10	10	150
Surface Cleanse 930	10	5	150
SC Aircraft & Metal	5	10	130
SC Aircraft & Metal	5	5	150
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SC Aircraft & Metal	10	5	130
SC Aircraft & Metal	10	10	130
SC Aircraft & Metal	10	5	150
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Thirty preweighed coupons were coated with the New England Industrial Lubricants NEILCUT 333 using a hand held swab. Coupons were then weighed again to determine the amount of lubricant added. Three coupons were cleaned in each solution for either 5 or 10 minutes using stir-bar agitation. Following cleaning, the coupons were rinsed in tap water at 120 F for 30 seconds and dried using a Master appliance heat gun at 500 F for 1 minute.
Once coupons were cooled to room temperature, final weights were recorded and efficiencies were calculated.

Results: The SC Aircraft & Metal cleaner was successful in removing the oil under multiple operating conditions. The effectiveness of the Surface Cleanse 930 decreased as temperature and time were increased. The following table lists the efficiencies for both products under the different settings.

Cleaner	Time/ Temp	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev
Surface Cleanse 930 @10%	10/130	76.10	73.84	87.23	79.06	7.17
	10/150	-26.61	-108.36	17.33	-39.21	63.78
	5/150	-49.27	3.48	6.74	-13.02	31.44
SC Aircraft @ 5%	10/130	100.44	102.09	100.41	100.98	0.96

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	5/150	98.93	98.72	99.36	99.01	0.33
	10/150	97.84	93.42	85.89	92.38	6.04
SC Aircraft @ 10%	5/130	98.46	96.95	100.41	98.61	1.74
	10/130	100.46	100.80	100.98	100.75	0.26
	5/150	100.18	100.07	98.92	99.72	0.70
	10/150	100.58	100.19	97.68	99.48	1.57

Summary:

Substrates:	Stainless Steel
Contaminants:	Lubricating/Lapping Oils

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
International Products Corporation	Surface Cleanse Concentrated Neutral 930	10	79.06	☐	10 minutes
International Products Corporation	Surface Cleanse Concentrated Neutral 930	10	-39.21	☐	10 minutes
International Products Corporation	Surface Cleanse Concentrated Neutral 930	10	-13.02	☐	5 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	100.98	☑	10 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	99.01	☑	5 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	92.38	☑	10 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	98.61	☑	5 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	100.75	☑	10 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	99.72	☑	5 minutes
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	99.48	☑	10 minutes

Conclusion:

The increase in temperature, time, concentration or the combination of each resulted in improved cleaning efficiency for the SC Aircraft & Metal cleaner.