CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2004
DateRun:	05/17/2004
Experimenters:	Jason Marshall
ClientType:	Bicycle Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel, Titanium, Carbon Fiber
PartType:	Part
Contaminants:	Cutting/Tapping Fluids, Fluxes, Inks, Oil
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Visual
Purpose:	To evaluate top three cleaners on supplied parts

Experimental Procedure:

Three cleaners were selected from the previous trial and were diluted to 5% using DI water in 600 ml beakers heated to 120 F on a hot plate. Three pieces of titanium tubing were coated with all the oils and the flux at one time. Each part was cleaned in one solution for five minutes using an immersion process.

In addition, one titanium part with sharpie ink, another titanium part with printing ink, one steel part and one carbon fiber part were cleaned in two of the three products in an identical manner. The Today & Beyond was not used to clean a carbon fiber part (not enough pieces). One welded part with flux residue was cleaned in one solution (half of the part was immersed into SC Aircraft & Metal Cleaner) for five minutes. Then the part was cleaned in a second solution (the other half was immersed into Micro 90) for five minutes.

The whole part was rinsed in tap water at 120 F for 15 seconds and dried using air blow off. Visual observations were made to determine which products were the most successful at cleaning the supplied parts.

Contaminants Cleaned: Tapping fluid, Castrol Industries Moly Dee Tapping fluid (63449-39-8, 64741-96-4); Tapping fluid, Master Chemical Corp Trim C270 (102-71-6, 63231-48-1, 141-43-5); Oil, Exxon Mobil DTE Light; Oil, Peanut Oil; Wolverine Ultra Flux (1332-77-0, 10043-35-3, 7789-29-9, 11128-29-3, 151-21-3); Ink, Sharpie Marker; Ink, Printed ink

Results:

The table lists the observations made during the cleaning of the different parts.

Product	Substrate	Contaminant	Observations
SC Aircraft & Metal			Removed oil and flux easily
Micro 90	Titanium	Oils & Flux	Removed oil and flux easily
Beyond 2004			Removed oil and flux easily
SC Aircraft & Metal	Ink-Sharpie	Ink easily wiped off	
Micro 90			Ink wiped off with some effort
Beyond 2004			Ink required most
SC Aircraft & Metal	Ink-Printed	Started to dissolve ink.	Easily wiped off
Micro 90			Required effort to remove ink
Beyond 2004			Required effort to remove ink
SC Aircraft & Metal	Steel	Oil	Appeared clean

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Micro 90			Appeared clean
Beyond 2004			Appeared clean
SC Aircraft & Metal	Titanium, Steel	Flux	Dissolved flux, may have had some rust
Micro 90			Dissolved flux, may have had some rust

Summary:

Substrates:	Steel, Titanium, Carbon Fiber
Contaminants:	Cutting/Tapping Fluids, Fluxes, Inks, Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	0.00	☑	
International Products Corporation	Micro 90 Conc.	5	0.00	☑	
Today & Beyond	Beyond 2004	5	0.00	☑	

Conclusion:

The SC Aircraft & Metal Cleaner and Micro 90 appear to well suited for cleaning all supplied contaminants using immersion cleaning. The Beyond 2004 required slightly more effort to remove inks but was effective at removing the oil and flux.