CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001

DateRun: 09/12/2001

Experimenters: Jason Marshall

ClientType: General

ProjectNumber: Project #1

Substrates: Brass

PartType: Part

Contaminants: Rust/Scale, Oxides

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: To identify products that will brighten the brass parts after removing the paint.

Experimental Procedure: Six products were selected based on vendor supplied information for removal of oxides and rust. One solution was used at 2% and a second was used at 100%. The other four were diluted to 30%. Each solution was diluted with DI water in 140 ml beakers and heated to 150 F on a hot plate. One brass part, free of paint, was immersed into each cleaner. Observations were made at 5, 10 , 15 and 30 minutes. At the end of the 30 minutes, the parts were wiped dry with a paper towel.

Results: All six products changed the appearance of the tarnished parts. The Bio Z product brought the color of the brass closest to the desired end point, followed by Mirachem 250, Geo Guard 3015, Alukleen 36, Citranox, and the Glass Cleaner. Table 1 lists the observations made at each of the four time intervals.

Cleaner	5 minutes	10 minutes	15 minutes	30 minutes
Citranox	Pale copper color	Green film	Copper color w/ spots of brass color	Flat brass color with green spots
Glass Cleaner	Little improvement	Turning dark green	Mostly green with some brass spots	Green coming off, more brass color
Geo Guard 3015	Quick copper color	Red color	Red with brass color	Light brass with red tint
Alukleen 36	Copper color	Pale purple	Pale purple with dark spots	Dark purple, lots of black
Bio Z	Bass & copper color	More brass than copper	Brass color with spots	Shiny spots, reddish brass color
Mirachem 250	Pale copper color	Pale purple with brass color	More brass color than purple	Flat brass color with red spots

Summary:

Substrates:	Brass				
Contaminants:	Rust/Scale, Oxides				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Citranox	100	5.00	☐	Rank
Rochester Midland Corporation	EnviroCare Glass Cleaner	100	6.00	☐	Rank

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Calgon Corporation	Geo Guard 3015	100	3.00	☑	Rank
Heatbath Corporation	Alu-Kleen 36	100	4.00	☑	Rank
International Bio System	Bio Z	100	1.00	☑	Rank
Mirachem Corporation	Mirachem 250	100	2.00	☑	Rank

Conclusion: The top four products will be used in follow evaluation at lower concentrations to determine if a better brightening can be achieved at lower concentrations.