CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2015
DateRun:	08/26/2015
Experimenters:	George Liang, Luis Raudales
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	
PartType:	Coupon
Contaminants:	Inks
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gloss-Color Meter
Purpose:	To evaluate supplied equipment for white board cleaning as compared to conventional products.
Experimental Procedure:	A black dry erase marker was used to color in four sections of the white board with 4 inch square. The black square was aged at an accelerated rate by using a Master Appliance heat gun operating at the low setting (300F) from 8-9” above the surface. The heat was applied for 5 minutes. After aging, the surface of the marked region was wiped once with a single pass using a dry bounty paper towel. An intermediate, light contrast and color reading were done on the surface to assess if there was any change from its initial dirty. Then the cleaning product was applied to the contaminated surface with 2 sprays. Thereafter the wet surface was wiped using a fresh bounty paper towel folded in half for a maximum of 30 seconds in a circular motion. A second application of cleaner was delivered only if the surface becomes dry during the wipe. Visual, light contrast and color observations were made on the white board to determine how effective the cleaning product was after manual wiping. The procedure was repeated for a total of three sections of the white board. The fourth colored square was used as a control for evaluation of how effective the cleaning products were able to remove the initial dirty dry erase marker from the surface. Products were ranked against the others by three staff members. Chemistries Evaluated: Newell Rubbermaid; Quartet Whiteboard; G and O Cleaner

Results:

Cleaner	Initial	Dirty	Final L	Dirty % Change	Final % Change	Dirty % Avg.	Final % Avg.
Newell Rubbermaid							
	-39.36	-40.18	-9.33	-2.08	76.3		
	-44.04	-43.18	-14.76	1.95	66.49		
	-41.94	-43.11	-11.76	-2.79	71.96	-0.97	71.58
Quartet Whiteboard							
	-47.64	-49.63	-5.52	-4.18	88.41		
	-40.17	-40.87	-0.31	-1.74	99.23		
	-43.28	-44.12	-2.4	-1.94	94.45	-2.62	94.03
G and O Cleaner							
	-38.35	-38.63	-2.3	-0.73	94		
	-44.26	-39.55	-1.79	10.64	95.96		
	-41.33	-47.73	-1.58	15.49	96.18	-1.86	95.38
Cleaner	Initial a	Dirty a	Final a	Dirty % a	Final %a	Dirty %Avg. a	Final %Avg. a
Newell Rubbermaid							
	2.08	2.22	0.61	-6.73	70.67		
	2.49	2.38	0.93	4.42	62.65		
	2.46	2.41	0.68	2.03	72.36	-0.09	68.56
Quartet Whiteboard							
	2.46	2.36	0.2	4.07	91.87		
	1.89	1.97	0.12	-4.23	93.65		
	2.15	2.15	0.06	0	97.21	-0.06	94.24
G and O Cleaner							
	2.13	2.13	0.17	0	92.02		
	2.44	2.22	0.08	9.02	96.72		
	2	2.55	0.11	-27.5	94.5	-6.16	94.41

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Cleaner	Initial b	Dirty b	Final b	Dirty % b	Final % b	Dirty % Avg. b	Final % Avg. b
Newell Rubbermaid							
	2.16	2.19	0.55	-1.39	74.54		
	2.99	2.75	0.87	8.03	70.9		
	3.31	3.05	0.86	7.85	74.02	4.83	73.15
Quartet Whiteboard							
	2.53	1.59	0.07	37.15	97.23		
	2.1	2.06	0.52	1.9	75.24		
	1.76	2.42	0.08	-37.5	95.45	0.52	89.31
G and O Cleaner							
	2.75	2.78	0.2	-1.09	92.73		
	3.01	-2.72	0.08	190.37	97.34		
	2.08	-2.85	0.23	237.02	88.94	142.1	93

Visual Results

Cleaner	Board Layout	Visual 1	Visual 2	Visual 3	Average	Ranking
Newell Rubbermaid						
	Top	2	2	3		
	Middle	3.5	3.8	3.5		
	Bottom	2.2	2.5	3.5	2.89	3
Quartet Whiteboard						
	Top	1.5	2	3		
	Middle	1.1	1.1	2.5		
	Bottom	1.3	1.5	1.5	1.72	2
G and O Cleaner						
	Top	1.5	2	2		
	Middle	1.4	1.5	2		
	Bottom	1.3	1.5	1.5	1.63	1

Summary:

Substrates:					
Contaminants:	Inks				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
J. Penner Corporation/GBC Group.	Quartet Board Gear Marker Board Cleaner	100	0.00	☑	Effective at removing the ink from the white board.
Newell Rubbermaid	Expo White Board Cleaner	100	0.00	☑	Partially Effective at removing the ink from the white board.
Fisher Scientific	Absolute Ethanol	0	0.00	☐	
G and O Cleaner	G and O Cleaner	100	0.00	☑	Effective at removing the ink from the white board

Conclusion:

After the cleaning agent has been applied, there was a significant difference in contrast between the light and dark color. Amongst the cleaners G and O Cleaner had the highest difference in light contrast of 95.38%. A higher light contrast represents that the initial dark surfaced white board is nearly turning back to a white surface. In addition to that it is noted that the surface pre-treated for Quartet Whiteboard cleaning agent may have been easier to erase since 2/3 of the boxes had shown signs of removability after just one manual wipe with a paper towel unlike the two other surfaces pre-treated for Newell Rubbermaid and G and O Cleaner. Visually the cleaning agent G and O Cleaner worked slightly better than Quartet Whiteboard. Visually G and O Cleaner is only 0.09 better than Quartet Whiteboard. Newell Rubbermaid did not visually work as well as the other cleaners. The boards treated with Quartet Whiteboard and G and O Cleaner visually looks spotless of any residual black dry erase marker on the surface. Overall, the best cleaning agent would be as follows: G and O Cleaner, Quartet Whiteboard and Newell Rubbermaid.