CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	03/24/2010
Experimenters:	Jason Marshall, Scott Nadolna
ClientType:	Cleaning Equipment Mfr
ProjectNumber:	Project #1
Substrates:	Wood
PartType:	Coupon
Contaminants:	Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	
Purpose:	To evaluate the supplied cleaning equipment (microfiber mop and squeegee) against other traditional surface cleaning (paper towel, cloth or micro fiber alone)
Experimental Procedure:	Testing was conducted using water as the cleaning solvent. The tabletop surface (wood veneer) was pre-cleaned using an activated water cleaning system to enhance the removal of any biological material from the surface. A baseline reading was taken using a Hygiena System Sure Plus ATP measurement device in conjunction with Ultrasnap ATP test swabs. A four-inch square section of the pre-cleaned table was swabbed and read with the device. If the reading was above 25 fmol, the surface was cleaned again to achieve the acceptable level of cleanliness. With a clean (biologically) surface achieved, a green grape was cut in half and smeared across the surface. Following the application, a swab of the surface was taken to determine the level of ATP on the surface. An initial dry wipe was performed using a Kimberly Clark Reinforce X60 wiper and using a microfiber cloth. ATP levels were recorded to determine the effectiveness of the wiping action alone. The surface was then sprayed with water and wiped again with each cloth type. Both the paper towel and microfiber wiping were followed by a squeegee. The squeegee also was tested alone with water (no wiping with cloth). Finally, the wipes both sprayed with water (not the table) and the surface was cleaned with paper towel (no squeegee) and microfiber with squeegee. ATP levels were compared for each mechanism.
Results:	All cleaning methods resulted in some decreased ATP level on the wood veneer surface. The dry wiping reduced the baseline ATP levels from ~7500 fmol down to ~5000 fmol. When sprayed with water and then wiped, the level of ATP was reduced to ~600 with the paper towel but only 1600 with the microfiber. When the surface was first sprayed with water and then wiped with paper towel, the ATP levels went from ~6100 to ~800fmol. With the surfaced then cleaned with a squeegee, the level dropped 269 fmol. The microfiber readings went from a baseline of ~7100 fmol to 269 without squeegee and 251 fmol with a squeegee. When the surface was cleaned with a squeegee alone, the ATP level was recorded to be 760 fmol. The final comparison was conducted when spraying water directly onto the wipe (not onto the table). The paper towel lowered the ATP to 767 fmol and the microfiber alone reduced the level to ~1500 fmol. However, when coupled with the squeegee, the level was the lowest achieved, 202 fmol. The tables list the ATP levels for the various cleaning scenarios.

Initial Cleaning Process

Cleaning processes	Initial ATP	Dry - 2 wipes	Water sprayed on to surface
wipe paper towel	7669	5023	601
wipe microfiber	7823	5940	1612
	440		

Tabletop testing

	Grape	Water cleaning - sprayed onto table top	wiped with squegee	Water sprayed onto wiper	wiped with squegee
wiped with towel	6157	832	518	767	
wiped with microfiber	7130	269	251	1583	202

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squegee alone	~7000		760		

Summary:

Substrates:	Wood
Contaminants:	Food

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Water	Water	100	86.00	☑	Kimberly Clark Wypal X60 paper towel with water onto surface no squeegee ATP Level 830/6157
Water	Water	100	92.00	☑	Kimberly Clark Wypal X60 paper towel with water onto surface w/ squeegee ATP Level 518/6157
Water	Water	100	88.00	☑	Kimberly Clark Wypal X60 paper towel with water onto wiper no squeegee ATP Level 767/6157
Water	Water	0	18.00	☐	Kimberly Clark Wypal X60 paper towel with dry wipe ATP Level 5023/6157
Water	Water	100	96.00	☑	Kaivac Kaifly microfiber system with water onto surface no squeegee ATP Level 269/7130
Water	Water	100	96.00	☑	Kaivac Kaifly microfiber system with water onto surface with squeegee ATP Levels 251/7130
Water	Water	100	78.00	☐	Kaivac Kaifly microfiber system with water onto wipe no squeegee ATP Levels 1583/7130
Water	Water	100	97.00	☑	Kaivac Kaifly microfiber system with water onto wipe w/ squeegee ATP Levels 202/7130
Water	Water	0	17.00	☐	Generic Microfiber dry wipe ATP Level 5940/7130
Water	Water	100	89.00	☑	Squeegee ATP Levels 760/7000

Conclusion:

The Kaifly system of microfiber and squeegee was found to be an effective method of removing biological contaminant (fresh grape) using ATP levels as measured with a Hygiena System Sure Plus device with Ultrasnap ATP swabs. When compared to a high-end reinforced paper wipe, the results for the Kaifly combination system were slightly better at reducing the ATP levels. Follow up testing will be conducted comparing three types of paper towels (low, medium, high quality) and microfiber quality as well. In addition, other surface types will be evaluated for ATP reduction.