CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2015

DateRun: 10/12/2015

Experimenters: George Liang

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Aluminum, Ceramics, Glass/Quartz

PartType: Coupon

Contaminants: Chemical

Cleaning Methods:

Analytical Methods: Waterbreak

Purpose: To compare the effectiveness of the provided aqueous solution for hydrophobic interactions between two concentrations: one at full concentration and a second at a 0.1% diluted concentration on smooth surface substrates.

Experimental Procedure: A set of twelve ceramic, aluminum and glass substrates was individually tested with one out of the three solutions. BDT Sample 1 (pH 8.0) provided by the client at full concentration was initially tested on the smooth surfaces. Application of the solution was done in a gentle manner by using a TX 707A Large Rectangular Head Swab onto the surface of twelve ceramic substrates one at a time. After the application of the solution onto one of the ceramic surfaces, a bounty paper towel rinsed with deionized water was gently wiped onto the surface in a circular motion. The coated surfaces were allowed to sit at room temperature for set times of 5, 10, 20 and 30 minutes and then dipped into a beaker of 1000mL of deionized water at a vertical angle. When taken out of the water; it was placed into a horizontal position for one minute for signs of water breakage. This was repeated three times for the set of three ceramics at the specific time left at room temperature. For each interval of 5 minutes a set of three ceramic substrates was used to evaluate any signs of water break. The water break was evaluated by three testers.

This was repeated for the set of twelve glass and aluminum coupons. The test was repeated for BDT Sample 2 (pH 9.7) and Solution of BDT (pH 11.0) at full concentration after the completion of BDT Sample 1.

The same procedure was used for 0.1% diluted solution. One additional step was taken to dilute 1mL of stock solution with 99mL of deionized water prior to applying a 0.1% diluted concentration coating onto the smooth surface substrates.

Results: Chemistries Evaluated: Full concentrated BDT Sample 1 (pH 8.0); BDT Sample 2 (pH 9.7); Solution of BDT (pH 11.0); 0.1% diluted concentrated BDT Sample 1 (pH 8.0); BDT Sample 2 (pH 9.7); Solution of BDT (pH 11.0).

Surfaces Evaluated: Smooth Ceramic, Aluminum and Glass substrates.

Summary:

Substrates:	Aluminum, Ceramics, Glass/Quartz				
Contaminants:	Chemical				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Solenis	Solenis BDT Sample 1	100	0.00	☐	
Solenis	Solenis BDT Sample 2	100	0.00	☐	
Solenis	Solenis BDT Solution	100	0.00	☑	

Conclusion: There were signs of water breakage only on aluminum substrates for both concentrations. However, there was no sign of water breakage on roughed aluminum surfaces coated with full concentration of BDT Sample 1. Signs of water breakage on aluminum smooth surfaces were consistent from the start of 5 minutes at a 0.1% concentration of solution. Whereas smooth aluminum surfaces coated with full concentration of the three sample solutions had water breakage signs after 30 minutes. The water breakage level was the same for concentrations of BDT Sample 2 on smooth aluminum surfaces after 30 minutes. There were more water breakage signs on smooth aluminum substrates for surfaces coated with full concentration of Solution of BDT.