CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 05/18/2000

Experimenters: Jason Marshall, John Brunelle

ClientType: Consultant

ProjectNumber: Project #1

Substrates: Liquid

PartType: Coupon

Contaminants:

Cleaning Methods:

Analytical Methods: Surfactant Titration

Purpose: To determine relative concentration of Hotel cleaning solutions.

Experimental Procedure: Samples of each cleaning solution were collected from the client's staff by SCL. The products collected were from the supply used during actual cleaning. The client samples were to be compared to the products SCL received from the vendor. Titrations were tested for nonionic surfactant content using Bama Chem Nonionic Surfactant Kit.

The general procedure is as follows:
1. ADD APPROXIMATELY 25 ML OF WATER TO MIXING VIAL
2. ADD 8 DROPS OF INDICATOR SOLUTION TO VIAL. COLOR SHOULD BE GREEN.
3. ADD 15 DROPS OF 20% SULFURIC ACID TO VIAL (20 DROPS IF STRONGLY ALKALINE DETERGENTS ARE TESTED) AND SWIRL. COLOR SHOULD NOW BE PURPLE. (CAUTION: HANDLE THIS SOLUTION WITH CARE. IT IS CORROSIVE AND MAY CAUSE BURNS.)
4. ADD 0.5ML OF NONIONIC DETERGENT SOLUTION TO VIAL AND SWIRL, COLOR SHOULD NOW TURN BACK TO GREEN OR YELLOW-GREEN.
5. ADD TITRATING SOLUTION DROP WISE WHILE COUNTING UNTIL THE COLOR CHANGES TO A WINE-RED OR PURPLE. (ABOUT HALFWAY TO THE ENDPOINT THE COLOR WILL BE TAN OR LIGHT BROWN). NOTE THE NUMBER OF DROPS NEEDED AND MULTIPLY BY 0.5 TO GET % BY VOLUME OF NONIONIC DETERGENT. EACH DROP IS EQUIVALENT TO 0.0028 GRAMS OF SURFACTANT.

The chemistries used were:
COMPANY PRODUCT
Rochester Midland Tough Job
Rochester Midland Wash Room & Fixture
Rochester Midland Glass Cleaner

SUBSTRATE MATERIAL: Liquid
CONTAMINANTS: None

Results: The concentrations of all three products were higher for the mixtures obtained from the Lenox. The Copley products were roughly at the same concentration as the lab samples. Table 1 lists the results from the surfactant testing for the three products.

Table 1. Nonionic Surfactant Testing

Source	SCL	Lenox	Copley
Mfr	Rochester Midland	Rochester Midland	Rochester Midland
Product	Tough Job	Tough Job	Tough Job
Conc. %	6.25	33	7.75
Volume	5	1	5
Wt of Surf	0.0812	0.0868	0.1008
% Surf.	1.45	7.75	1.8
Total Surf % 23.2	23.485	23.226	
Mfr	Rochester Midland	Rochester Midland	Rochester Midland
Product	Washroom & Fixture	Washroom & Fixture	Washroom & Fixture
Conc. %	3.125	6	1.25
Volume	25	10	40

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Wt of Surf	0.0476	0.0364	0.0308
% Surf.	0.17	0.325	0.06875
Total Surf % 5.44	5.417	5.5	
Mfr	Rochester Midland	Rochester Midland	Rochester Midland
Product	Glass Cleaner	Glass Cleaner	Glass Cleaner
Conc. %	Not Supplied	3.13	2.25
Volume	30	30	
Wt of Surf	0.1092	0.0784	
% Surf.	0.325	0.233	
Total Surf %	10.4	10.37	

Summary:

Conclusion: The Lenox products evaluated were found to be more concentrated than the Copley samples. The Copley samples were determined to closely match the recommended low end concentrations of the laboratory diluted samples.