

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004  
 DateRun: 10/25/2004  
 Experimenters: Jason Marshall, Ephraim Massawe  
 ClientType: General  
 ProjectNumber: Project #1  
 Substrates: Plastic  
 PartType: Coupon  
 Contaminants: Coatings  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric

Purpose: To evaluate more biobased products for floor stripping.

Experimental Procedure: Three more products were selected from the lab's inventory of biobased products. These products were specified by vendor information as being designed for floor stripping. The three products were used at 100% dilutions as suggested by the manufacturer.

Nine preweighed plastic composite tiles were coated with Johnson Wax Professional Show Place floor finish (40861-29-8, 78-51-3, 34590-94-8, 111-90-0) using a hand held swab. The finish was dried using a hand held heat gun for two minutes at ~300 F. Once the finish/coupon had cooled, three more coats were applied following the same procedure. Coupons were reweighed to determine the amount of finish that was applied.

Three coated coupons were placed in a BYK Gardner abrasion tester used to apply uniform manually cleaning. The coupons were sprayed with a cleaning product. The formulation was allowed to sit on the finish surface for 5 minutes. A cotton rag was placed on the cleaning sled and sprayed with the same cleaning product as the coupons. The cleaning lasted for 30 cycles (50 seconds). At the end of the cleaning, the coupons were wiped once to remove any cleaner residue. Final weights were recorded and efficiencies were calculated.

Results: One of the products tested out performed the current floor stripper being used by the client. A second product had identical results and the third product showed potential for removing the floor finish but had some foaming issues that would need to be addressed. The table below lists the amount of floor finish was added, how much remained and the efficiency for each coupon cleaned.

| Cleaner         | Initial wt | Final wt | % Removed |
|-----------------|------------|----------|-----------|
| Bio T Max       | 0.2005     | 0.0709   | 64.64     |
|                 | 0.1772     | 0.0347   | 80.42     |
|                 | 0.1989     | 0.0793   | 60.13     |
| Botanic Gold    | 0.1694     | 0.0952   | 43.8      |
|                 | 0.2119     | 0.1611   | 23.97     |
|                 | 0.1582     | 0.0681   | 56.95     |
| SC Actisolv     | 0.1612     | 0.039    | 75.81     |
|                 | 0.1548     | 0.0367   | 76.29     |
|                 | 0.1391     | 0.0278   | 80.01     |
|                 |            |          |           |
| Current Product |            |          |           |
| Johnson Wax     | 0.1188     | 0.0597   | 49.75     |
|                 | 0.1189     | 0.0232   | 80.49     |
|                 | 0.1173     | 0.0254   | 78.35     |
|                 |            | Ave      | 69.53     |

Summary:

|                        |                            |               |                    |                                     |                                 |
|------------------------|----------------------------|---------------|--------------------|-------------------------------------|---------------------------------|
| <b>Substrates:</b>     | Plastic                    |               |                    |                                     |                                 |
| <b>Contaminants:</b>   | Coatings                   |               |                    |                                     |                                 |
| <b>Company Name:</b>   | <b>Product Name:</b>       | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b>            |
| Bio Chem Systems       | Bio T Max                  | 100           | 68.40              | <input checked="" type="checkbox"/> |                                 |
| PureTech International | Botanical Gold             | 100           | 41.58              | <input checked="" type="checkbox"/> | Foaming issues at full strength |
| Gemtek Products        | SC Actisolv Safety Solvent | 100           | 77.37              | <input checked="" type="checkbox"/> |                                 |

Conclusion:

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Additional testing may be performed to improve the performance of all of the products that showed signs of removing the floor finish in previous trials.