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Fax: 847.776.4486

Email: [syed.mahmood@hbfuller.com](mailto:syed.mahmood@hbfuller.com)

Mr. Syed Mahmood  
Senior Chemist  
H.B. Fuller Construction Products Inc.  
315 South Hicks Rd.  
Palatine, IL 60067

**Extended Stain Resistance Testing of AccuColor® Grout Using Grout Additives  
H.B. Fuller Construction Products Inc. Grout Boost® vs. Miracle Sealants Company Grout  
Shield®  
CTLGroup Project No. 401743; Work Request No. 28252**

Dear Mr. Mahmood:

Attached are the final test results of AccuColor® grout stain testing performed at CTLGroup on April 18, 2011 through June 10, 2011 on behalf of H.B. Fuller Construction Products Inc. The objective of this work was to evaluate the stain resistance of AccuColor grout prepared with H.B. Fuller Construction Products Inc. Grout Boost® additive versus those prepared with Miracle Sealants Company Grout Shield® additive.

On April 8, 2011, two tile grout boards were fabricated at CTLGroup's laboratory in Skokie, Illinois according to the manufacturer's recommended instructions with equipment and materials<sup>1</sup> you provided. One tile grout specimen was fabricated using AccuColor Grout with H.B. Fuller Construction Products Inc. Grout Boost additive. The other tile grout specimen was fabricated using AccuColor Grout with Miracle Sealants Company Grout Shield additive. No sealers were applied to the exposed surfaces of the grout. The fabrication procedure is detailed in Table 1.

**Table 1. Fabrication Procedure of Tile Grout Specimens**

1. Weigh liquid and dry component materials.
2. Mix components in a small, clean bucket.
3. Use drill and paddle to thoroughly mix for approximately two minutes until material is consistent.
4. Allow grout mixture to slake for approximately ten minutes.
5. Re-mix the grout briefly with drill and paddle.
6. Apply the grout mixture to tile boards using a hard rubber float.
7. Allow tile grout boards to rest for 20-30 minutes.
8. Carefully remove excess grout from tile grout boards using a soft wet sponge without disturbing grout lines.
9. Allow tile grout boards to cure in laboratory air for 10 days.

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<sup>1</sup> AccuColor grout lot no. 3910119111278, Grout Boost lot no. 8201117121, Grout Shield lot no. CSNTA 10246 258, Tile & Stone Cleaner lot no. MCNB1 11040 052, Heavy Duty Acidic Cleaner lot no. HDAC91-111.

As instructed, the tile grout specimens were tested after the specified curing period (10 days) according to a modified CTI T-72 test method<sup>2</sup>. The test method was modified for the evaluation of tile grouts.

The staining materials used for this study consisted of cola, coffee, mustard, soy oil, Worcestershire sauce, red wine, Gatorade®, catsup, and soy sauce. Each staining material was applied to a separate location of the test specimen and remained there for a period of 30 minutes. Each tile grout specimen was then rinsed under warm water and cleaned with a nylon scrubber for up to 5 minutes. Scrubbing with moderate force continued at each stain location until no change in the stain could be observed. The specimens were then allowed to dry in ambient conditions for 24 hours.

At least six locations on the tile grout board fabricated using Miracle Sealants Company Grout Shield were categorized as stubborn grout stains. Therefore, as recommended by Miracle Sealants Company, additional cleaning procedures<sup>3</sup> using Miracle Sealants Company Tile & Stone Cleaner and Miracle Sealants Company Heavy Duty Acidic Cleaner were followed before the final degree of staining was assessed.

Test results are presented in Table 2. The degree of staining is reported in terms of a numeric scale from 0 to 5, with 0 indicating no stain and 5 indicating a heavy stain. A legend showing the location of each staining material is given in Figure 1. Photographs of the tile grout specimens after testing are given in Figures 2 through 6.

**Table 2. Stain Results after 24 Hours Drying**

Stain Location	Stain Material	Final Degree of Staining after Miracle Sealants Company Recommended Cleaning Procedures <sup>3</sup>	
		AccuColor with Grout Boost <sup>4</sup>	AccuColor with Grout Shield
1	Cola	0	2
2	Coffee	0	5
3	Mustard	0	1
4	Vegetable Oil	0	1
5	Worcestershire Sauce	0	5
6	Red Wine	0	3
7	Gatorade®	0	4
8	Catsup	0	1
9	Soy Sauce	0	2

<sup>2</sup> <http://www.ctioa.org/reports/fr91.html>

<sup>3</sup> <http://www.miraclegroutshield.com/cleaning.html>

<sup>4</sup> The tile grout specimen fabricated using AccuColor Grout with H.B. Fuller Construction Products Inc. Grout Boost additive was not subjected to additional cleaning procedures using Miracle Sealants Company products.

We appreciate the opportunity to conduct specialized testing for you. Should you have any questions, please contact us.

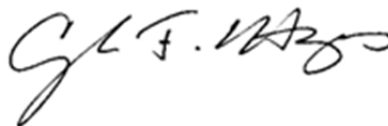
Sincerely,

**CTLGroup**  
**An AASHTO Accredited Laboratory – Aggregates, Cement & Concrete**



Julia Johnson  
Supervisor, Mortar Laboratory  
Materials Laboratory Services

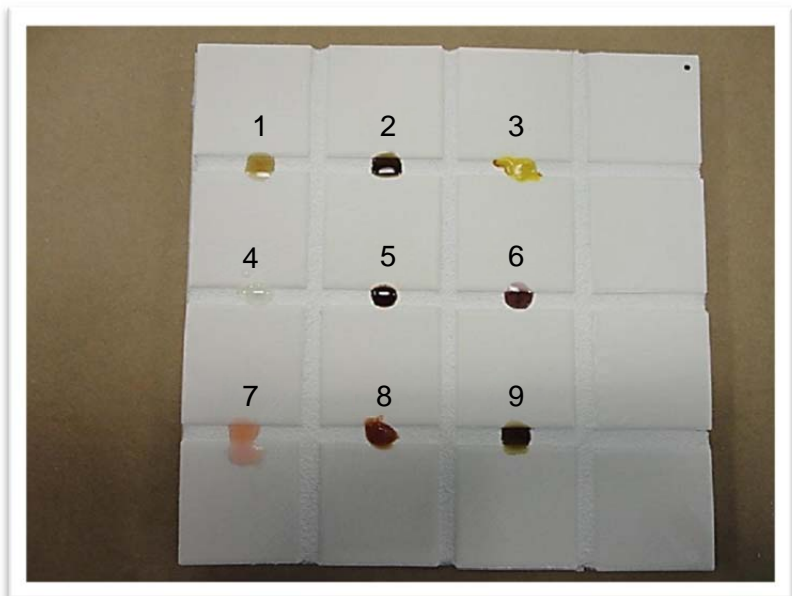
[JJohnson@CTLGroup.com](mailto:JJohnson@CTLGroup.com)  
Phone: (847) 972-3122



Cyler Hayes  
Senior Chemist  
Materials Laboratory Services

[CHayes@CTLGroup.com](mailto:CHayes@CTLGroup.com)  
Phone: (847) 972-3164

Attachments



Stain Location	Stain Material
1	Cola
2	Coffee
3	Mustard
4	Vegetable Oil
5	Worcestershire Sauce
6	Red Wine
7	Gatorade®
8	Catsup
9	Soy Sauce

Figure 1. Legend of staining materials



Figure 2. Appearance of tile board prepared with H.B. Fuller Construction Products Inc. Grout Boost 24 hours after removal of staining agents with warm water



Figure 3. Appearance of tile board prepared with Miracle Sealants Company Grout Shield 24 hours after removal of staining agents with warm water



Figure 4. Appearance of tile board prepared with Miracle Sealants Company Grout Shield after removal of staining agents with dish soap



**Figure 5. Appearance of tile board prepared with Miracle Sealants Company Grout Shield after removal of staining agents with Miracle Sealants Company Tile & Stone Cleaner**



**Figure 6. Final appearance of tile board prepared with Miracle Sealants Company Grout Shield after removal of staining agents with Miracle Sealants Company Heavy Duty Acidic Cleaner**