# Technical Bulletin

## Laboratory Evaluation Chemical Resistance of the Scotch-Brite™ High Performance Cloth, No. 2011

Number: TB-SP-8 Date: November 1998

**Objective:** To evaluate the resistance of the Scotch-Brite™ High Performance Cloth to various cleaning chemicals and solvents.

**Test Procedure:** The chemicals evaluated in this study were:

| | |
|---|---|
| Acetone | Household Ammonia |
| Heptane | Bleach (approximately 5.25% sodium hypochlorite) |
| Isopropyl alcohol (IPA) | Formula 409 (The Chlorox Company) |
| 3M HFE-7100 | White Vinegar |
| 3M HFE-71DA | Vegetable Oil |
| 3M HFE-71DE | Hydrochloric Acid (pH = 0.1) |
| Mineral Oil | Sodium Hydroxide (pH = 14.0) |
| Trichloroethylene | |

Each color of the Scotch-Brite™ High Performance Cloth (32 cm x 36 cm; 12.6 in. x 14.2 in.) was independently soaked in 300 grams (10.6 oz.) of the chemicals listed for a period of seven days at room temperature. After seven days, each Scotch-Brite™ High Performance Cloth was wrung to remove excess chemical and rinsed with tap water to remove any residual chemical. Scotch-Brite™ High Performance Cloths with chemicals that could not be removed by hand rinsing were machine washed. The Scotch-Brite™ High Performance Cloths were then allowed to air dry.

The excess chemical wrung from the Scotch-Brite™ High Performance Cloth was returned to the container used to soak each individual cloth and used in the subsequent color bleed analysis.

The Scotch-Brite™ High Performance Cloths were evaluated using Home and Commercial Care Laboratory Test Methods (HCC-TM) for the following properties: basis weight (HCC-TM-69), thickness (HCC-TM-69), color fade (HCC-TM-94), color bleed (HCC-TM-94), tear strength (HCC-TM-75), sebum removal (HCC-TM-90), absorption (HCC-TM-73), and dust removal (HCC-TM-93).

## Results:

The chemical resistance results are summarized in the table below:

| Chemical | Color | Basis Weight | Thickness | Tear Strength | Sebum Removal | Water Absorp. | Dust Removal | Color Fade | Color Bleed |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | Red | o | + | + | + | + | - | + | o |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | + | - |
| | Yellow | | | | | | | o | - |
| | White | | | | | | | + | - |
| IPA | Red | o | + | + | + | + | o | + | - |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | + | - |
| | Yellow | | | | | | | + | - |
| | White | | | | | | | + | o |
| Heptane | Red | + | + | - | + | + | + | + | o |
| | Blue | | | | | | | + | o |
| | Green | | | | | | | + | o |
| | Yellow | | | | | | | + | o |
| | White | | | | | | | + | o |
| HFE-7100 | Red | + | + | - | + | + | + | + | + |
| | Blue | | | | | | | + | + |
| | Green | | | | | | | + | + |
| | Yellow | | | | | | | + | + |
| | White | | | | | | | + | + |
| HFE-71DA | Red | - | - | - | + | + | + | o | - |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | o | - |
| | Yellow | | | | | | | o | - |
| | White | | | | | | | o | - |
| HFE-71DE | Red | - | o | - | + | + | o | o | - |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | o | - |
| | Yellow | | | | | | | o | - |
| | White | | | | | | | o | - |
| Mineral Oil | Red | - | + | - | + | - | + | NA | o |
| | Blue | | | | | | | | o |
| | Green | | | | | | | | o |
| | Yellow | | | | | | | | o |
| | White | | | | | | | | o |
| Trichloroethylene | Red | - | + | - | + | o | + | + | - |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | o | - |
| | Yellow | | | | | | | o | - |
| | White | | | | | | | + | o |
| | | | | | | | | | |
| Rating Scale | | % Change | % Change | % Change decrease | % Change decrease | % Change decrease | % Change decrease | CIElab DE | Color in solvent |
| Excellent (+) | | <5 | <5 | <5 | <5 | <5 | <5 | 0-3 | None |
| Fair (o) | | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 | 3-10 | Low |
| Poor (-) | | >10 | >10 | >10 | >10 | >10 | >10 | >10 | High |
| Not Available - NA | | | | | | | | | |

## Results: (continued)

| Chemical | | Basis wt. | Thickness | Tear Strength | Sebum Removal | Water Absorp. | Dust Removal | Color Fade | Color Bleed |
|---|---|---|---|---|---|---|---|---|---|
| Ammonia | Red | o | + | - | + | + | + | o | - |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | + | - |
| | Yellow | | | | | | | + | - |
| | White | | | | | | | + | - |
| Bleach | Red | o | - | - | + | o | + | o | + |
| | Blue | | | | | | | - | + |
| | Green | | | | | | | o | + |
| | Yellow | | | | | | | o | + |
| | White | | | | | | | o | + |
| Formula 409 | Red | o | + | + | + | + | - | + | o |
| | Blue | | | | | | | + | - |
| | Green | | | | | | | + | - |
| | Yellow | | | | | | | o | - |
| | White | | | | | | | + | + |
| White Vinegar | Red | + | + | + | + | + | + | + | + |
| | Blue | | | | | | | + | + |
| | Green | | | | | | | + | + |
| | Yellow | | | | | | | + | + |
| | White | | | | | | | + | + |
| | | | | | | | | | |
| Vegetable oil | Red | o | + | - | + | - | + | NA | o |
| | Blue | | | | | | | | o |
| | Green | | | | | | | | o |
| | Yellow | | | | | | | | o |
| | White | | | | | | | | o |
| Hydrochloric Acid | Red | o | + | - | + | + | + | + | o |
| | Blue | | | | | | | NA | o |
| | Green | | | | | | | o | + |
| | Yellow | | | | | | | o | + |
| | White | | | | | | | + | + |
| Sodium Hydroxide | Red | + | + | - | + | + | - | o | - |
| | Blue | | | | | | | o | - |
| | Green | | | | | | | o | - |
| | Yellow | | | | | | | o | + |
| | White | | | | | | | + | + |
| | | | | | | | | | |
| Rating Scale | | % Change | % Change | % Change decrease | % Change decrease | % Change decrease | % Change decrease | CIElab DE | Color in solvent |
| Excellent (+) | | <5 | <5 | <5 | <5 | <5 | <5 | 0-3 | None |
| Fair (o) | | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 | 3-10 | Low |
| Poor (-) | | >10 | >10 | >10 | >10 | >10 | >10 | >10 | High |
| Not Available - NA | | | | | | | | | |

## Conclusion:

The Scotch-Brite™ High Performance Cloth resists a variety of chemicals though some chemicals may cause dye to bleed from the cloth. The white Scotch-Brite™ High Performance Cloth should be the recommended choice if dye bleed is a concern for the user.

**Important:**

The information provided in this report is believed to be reliable; however, due to the wide variety of intervening factors, 3M does not warrant that the results will necessarily be obtained. All details concerning product specifications and terms of sale are available from 3M.

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