

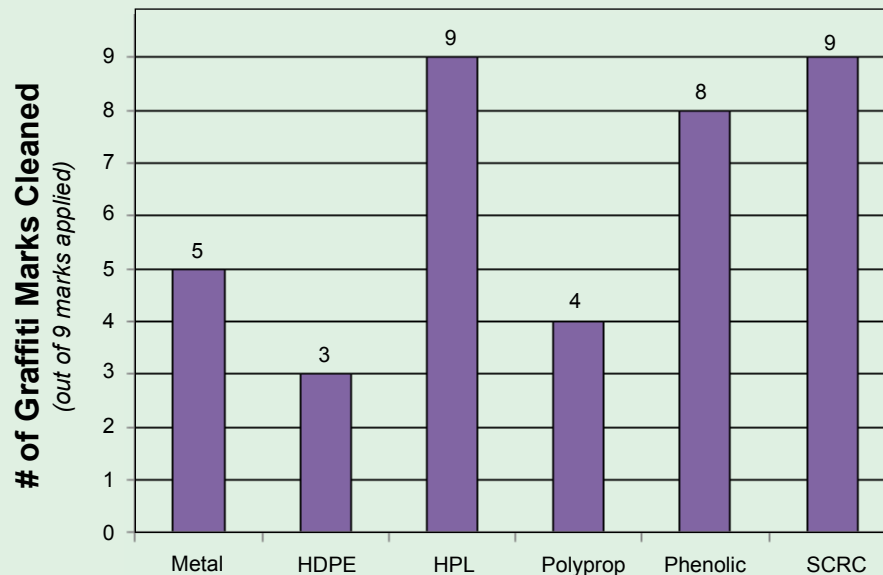
## TB-80 Graffiti Resistance of Various Toilet Partition Materials

### INDEPENDENT LABORATORY TESTING

Three samples of different toilet partition materials [Powder-Coated Metal (Metal), High Density Polyethylene (HDPE), High Pressure Laminate (HPL), Polypropylene (Polyprop), Plastic Laminate (P-Lam), Solid Phenolic Core (Phenolic) and Solid Color Reinforced Composite (SCRC)] were sent to an independent laboratory for testing and evaluation to determine the relative graffiti resistance of these materials. The tests were performed in accordance with American Society for Testing and Material ASTM D 6578-00 "Standard Practice for Determination of Graffiti Resistance" Section 9, Graffiti Removal Procedure Using Manual Solvent Rubs. This procedure prepares samples of each material with marks from a minimum of five different staining agents and allows these to set for at least 24 hours. The standard evaluates a test specimen's graffiti resistance by progressively cleaning the marks with more aggressive cleaning methods<sup>1</sup> and determining the first method that completely cleans the test specimen. A full description of the test is available from ASTM.

Bobrick selected this ASTM standard because, in our opinion, this standard provided an objective, repeatable, and comparable procedure with which to analyze the relative graffiti resistance properties and ease of cleaning different types of toilet partition materials. In the tests conducted, nine different marking agents were used.<sup>2</sup> A comparison of the cleanability results can be used to evaluate the relative graffiti resistances of different toilet partition materials. A copy of the independent laboratory test results is available upon request.

### RESULTS OF TEST



Source: Data is from test conducted by an independent laboratory in June, 2003.

continued . . .

Marking Agent	CLEANABILITY LEVELS <sup>3</sup>					
	Metal <sup>7</sup>	HDPE <sup>7</sup>	Polyprop <sup>7</sup>	HPL <sup>8</sup>	Phenolic <sup>7</sup>	SCRC <sup>7</sup>
1. Dixon Wax Crayon, Blue <sup>9</sup>	Level 1	Not Cleanable <sup>5</sup>	Level 3	Level 3	Level 3	Level 3
2. Sanford Sharpie, Blue <sup>9</sup>	Not Cleanable <sup>4,5</sup>	Not Cleanable <sup>5</sup>	Level 5 <sup>5</sup>	Level 4	Level 5	Level 4
3. Avery Marks-a-lot, Black <sup>9</sup>	Not Cleanable <sup>4,5</sup>	Not Cleanable <sup>5</sup>	Not Cleanable	Level 4	Not Cleanable <sup>5</sup>	Level 5 <sup>6</sup>
4. Krylon Spray Paint, Red <sup>9</sup>	Level 5	Level 5	Not Cleanable <sup>5</sup>	Level 4	Level 5	Level 5 <sup>6</sup>
5. Crayola Waterbase Marker, Black <sup>9</sup>	Level 2	Level 2	Level 2	Level 3	Level 2	Level 2
6. Sanford Magnum 44, Black <sup>10</sup>	Not Cleanable <sup>4,5</sup>	Not Cleanable <sup>5</sup>	Not Cleanable <sup>5</sup>	Level 5	Level 5 <sup>4</sup>	Level 5 <sup>6</sup>
7. Sanford King Size, Black <sup>10</sup>	Not Cleanable <sup>4,5</sup>	Not Cleanable <sup>5</sup>	Not Cleanable <sup>5</sup>	Level 5	Level 5 <sup>4</sup>	Level 5 <sup>6</sup>
8. Sanford Expo 2 Dry-Erase, Black <sup>10</sup>	Level 5 <sup>5</sup>	Not Cleanable <sup>5</sup>	Not Cleanable	Level 5	Level 4	Level 2 <sup>6</sup>
9. Sanford Slvr. Coat Metallic Paint, Slvr <sup>10</sup>	Level 3	Level 3	Level 3	Level 3	Level 3 <sup>4</sup>	Level 3
<b>TOTAL MARKS CLEANED</b>	<b>5 of 9 Cleaned</b>	<b>3 of 9 Cleaned</b>	<b>4 of 9 Cleaned</b>	<b>9 of 9 Cleaned</b>	<b>8 of 9 Cleaned</b>	<b>9 of 9 Cleaned</b>

## CONCLUSION

Of the materials tested, Solid Color Reinforced Composite, High Pressure Laminate and Solid Phenolic exhibited the best graffiti resistance properties of the toilet partition materials tested.

### Notes:

<sup>1</sup> ASTM 6578-00 outlines the sequence of cleaning procedures for the test samples beginning with a dry cotton cloth (Level 1), 1% aqueous detergent solution (Level 2), citrus cleaner (Level 3), isopropanol (Level 4), and Methyl Ethyl Ketone (MEK) (Level 5). The material's graffiti resistance designation level for each marking agent is assigned by the first cleaning method that removes the mark. A "Not Clean-able" designation is assigned if the graffiti mark can not be removed after all of the prescribed cleaning procedures are used.

<sup>2</sup> A total of nine (9) marking agents used in the laboratory tests including the five (5) specifically listed in ASTM 6578-00: Blue Wax Crayon (Dixon™), Blue Solvent-Based Marker (Sanford™ Sharpie™), Black Permanent Marker (Avery™ Marks-a-lot™), Red Solvent-based Spray Paint (Krylon™), Black Water-Based Ink Marker (Crayola™). Four additional marking agents were supplied by Bobrick Sanford Magnum 44™, Sanford King Size™, Sanford Expo 2™ Dry Erase, and Sanford SilverCoat™ Metallic Metal Paint Marker).

<sup>3</sup> Cleanability Levels refer to minimum cleaning method necessary to obtain a visually clean surface.

<sup>4</sup> Samples exhibited unacceptable gloss retention, defined by ASTM 6578-00 as a Gloss Retention ratio (Gloss post-test/Gloss pre-test) of less than 0.80.

<sup>5</sup> Samples exhibited unacceptable color shift, defined by ASTM 6578-00 as Average Color Shift (Delta E) change greater than 1.0, compared to an unmarked area.

<sup>6</sup> Recorded color shift change greater than 1.0. However, test results note that SCRC Quartz has a marbled surface (i.e., random color variations in surface). As such, the color and gloss values are more likely to vary across the surface than with a solid color sample.

<sup>7</sup> Graffiti tests run by Corrpro Companies Inc., June 2003.

<sup>8</sup> Graffiti tests run by Corrpro Companies Inc., August 2003.

<sup>9</sup> Marking agent required by ASTM D 6578.

<sup>10</sup> Additional marking agent supplied by Bobrick.