

## TB-79 Scratch Resistance of Various Toilet Partition Materials

### INDEPENDENT LABORATORY TESTING

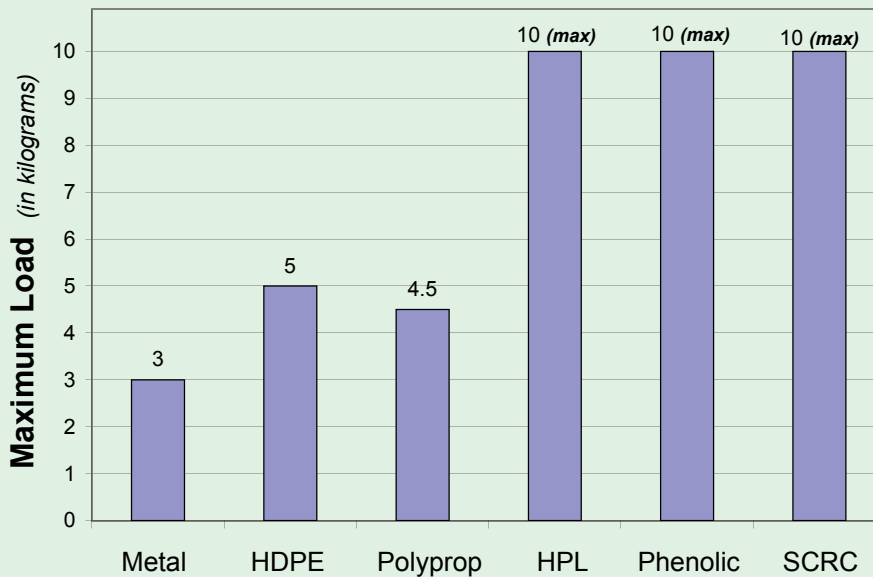
Three samples of six different partition materials [Powder-Coated Metal (Metal), High Density Polyethylene (HDPE), High Pressure Laminate (HPL), Polypropylene (Polyprop), Solid Phenolic Core (Phenolic), and Solid Color Reinforced Composite (SCRC)] were sent to an independent laboratory for testing and evaluation to determine the relative scratch resistances of these materials. The tests were performed in accordance with the American Society for Testing and Material ASTM D 2197-98(2002) "Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion." This procedure tests the scrape resistance of coatings (such as paints, varnishes, etc) applied to smooth substrates and was developed to provide relative ratings for a series of coated panels with different adhesion properties. This procedure adds weight to a scrape adhesion tester and drags a material sample underneath the loaded scraper. The amount of weight is varied (up to a maximum of 10 kg) to discover the maximum load that can be added to the scraper that does not cause damage to the surface of the test sample. 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 scratch resistance properties of the different toilet partition materials available. In the tests conducted, the prescribed stylus loop was replaced with a pointed 1mm stylus<sup>1</sup> to represent the types of common objects used to scratch toilet partitions (e.g. door, car key). A comparison of the maximum loads can be used to evaluate the relative scratch resistances of the different materials tested. A copy of the independent laboratory test results is available upon request.

continued . . .

## RESULTS OF TEST<sup>2</sup>

Material Samples <sup>3</sup>	Maximum Load <sup>4</sup>
Powder-Coated Metal	3.0 kg
High Density Polyethylene (HDPE)	5.0 kg
Polypropylene	4.5 kg
High Pressure Laminate (HPL)	10.0 kg (maximum) <sup>5</sup>
Solid Phenolic	10.0 kg (maximum) <sup>5</sup>
Solid Color Reinforced Composite (SCRC)	10.0 kg (maximum) <sup>5</sup>



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

## CONCLUSION

Of the materials tested, Solid Color Reinforced Composite, High Pressure Laminate and Solid Phenolic exhibited the greatest scratch resistance properties.

### Notes:

- <sup>1</sup> Pointed stylus used was Gardner Stock #PA-2197/ST. This stylus is produced from 1/16" tool steel, heat treated to Rockwell C 55-61, then chrome-plated to 0.0001 to 0.0003 inches. The surface finish is 8RMS.
- <sup>2</sup> All testing was performed at ambient laboratory conditions of 24±3°C and 55±10% relative humidity.
- <sup>3</sup> Material samples were cut down to a maximum thickness of 1/4" so that they could be tested by the Paul Gardner Scratch Adhesion & Mar Tester.
- <sup>4</sup> Maximum Load is the greatest amount of weight (in kilograms) that could be added that did not cause visible scratches in the test specimen surface.
- <sup>5</sup> 10 kg is the maximum load that could be applied with the test equipment.