

## **TB-78 Impact Resistance of Various Toilet Partition Materials**

### **INDEPENDENT LABORATORY TESTING**

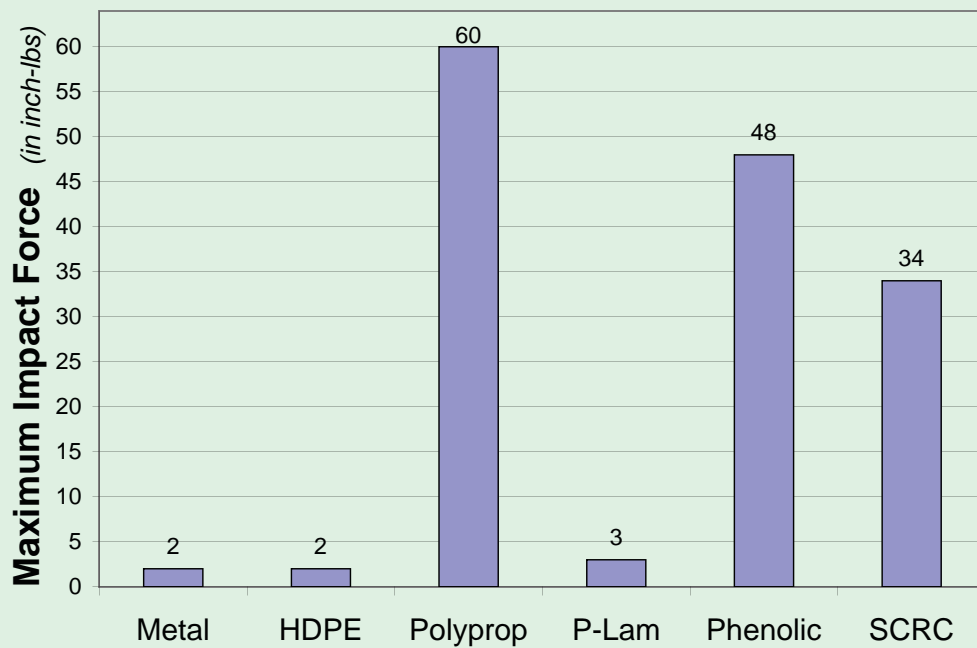
Three samples of six different partition materials [Powder-Coated Metal (Metal), High Density Polyethylene (HDPE), Polypropylene (Polyprop), Plastic Laminate (P-Lam), Solid Phenolic Core (Phenolic), and Solid Color Reinforced Composite (SCRC)] were sent to an independent laboratory for testing and evaluation to determine the relative impact resistances of these materials. The tests were performed in accordance with the American Society for Testing and Material ASTM D 2794-93(1999)e1 “Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation/Impact.” This test was developed to evaluate the effect of rapid deformation (by impact) on a coating film and its substrate by dropping a hemispherical indenter onto a test specimen from various heights. The indenter’s weight and/or drop-height are varied until the maximum impact force<sup>1</sup> is determined (in inch-lbs). 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 impact resistance properties of different materials. In the tests conducted, a 0.625” hemispherical indenter with 2-lb impact weight was utilized. In order to accommodate different types of material composition/construction, material failure was defined to include any visible deformation or damage to the test sample surface. A comparison of the maximum impact force can be used to evaluate the relative impact resistances of the different materials. A copy of the independent laboratory test results is available upon request.

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

Material Description	Max Impact Force <sup>1</sup>
Powder-Coated Metal	2 inch-lbs
High Density Polyethylene (HDPE)	2 inch-lbs
Polypropylene	60 inch-lbs
High Pressure Plastic Laminate <sup>3</sup>	3 inch-lbs
Solid Phenolic	48 inch-lbs
Solid Color Reinforced Composite (SCRC)	34 inch-lbs



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

## CONCLUSION

Of the materials tested, Polypropylene, Solid Phenolic and Solid Color Reinforced Composite exhibited the greatest resistance to material deformation by impact.

### Notes:

<sup>1</sup> Maximum Impact Force is the greatest impact force (in inch-lbs) applied that did not cause visible damage or deformation to the test specimen surface.

<sup>2</sup> Testing was performed at ambient laboratory conditions of  $24\pm 3^{\circ}\text{C}$  and  $55\pm 10\%$  relative humidity.

<sup>3</sup> Top and bottom faces of 7/8" thick 3-ply, 45-lb density particle board were laminated with 1/16" thick high pressure plastic laminate.