August 2011

Technical Bulletin—"Basic Types Laminates"

Wilsonart International—Technical Services

Overview of this Bulletin

In this technical bulletin we will discuss:

- Basic Laminate Composition
- Grades of Basic Type Laminates
- Differences between grades

Laminate Types

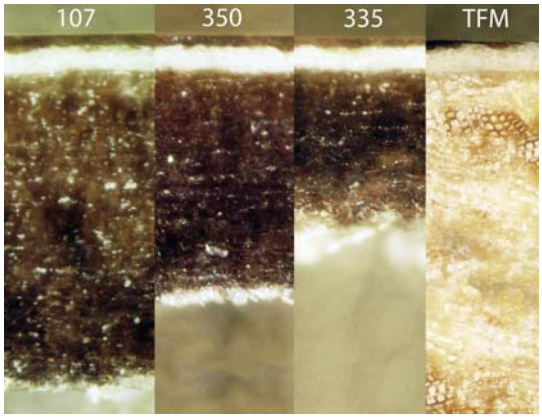
Three "grades" of High Pressure Decorative Laminate (HPDL) comprise the Wilsonart "Basic Types" category: **Type 107** and **350** are both Horizontal Grade Laminates; **Type 335** is recommended as a Vertical Grade.

Performance characteristics differ very little between these three types/grades. For example, wear resistance is the same for any specific design/finish combination because the decorative sheet/finish configuration is the same on each of the three basic grades. Other surface performance characteristics, like stain-resistance, fade (light) resistance, scratch resistance, and appearance properties are also the same for this reason.

The three types are primarily differentiated by the thickness and type of phenolic/kraft core incorporated into the sheet. This core consists of multiple layers of kraft paper saturated with phenolic resin for strength. The number/type of kraft layers contribute to the thickness, impact resistance, and postformability of the laminate.

For HPDL, all of these performance characteristics are measured against ANSI/NEMA LD 3-2005 standards defined for each type.

In this issue, we will look closer at the similarities and differences between the Basic Laminate Types for Wilsonart.



At 50X magnification, the melamine area or decorative portion of the sheet appears the same for the 3 basic laminate types. In the illustration above, they are compared to a thermo-fused melamine (TFM) sheet on particleboard that does not use a protective melamine overlay.

Quick Reference

There are 3 'Basic Types" of HPDL	WA Type
Horizontal Grade Standard (HGS)	**107**
Horizontal Grade Postforming (HGP)	**350**
Vertical Grade Postforming (VGP)	**335**

Overview—Horizontal Grades

Horizontal grade laminates are generally thicker than 0.028" (reference AWI—Architectural Woodwork Standards—Section 4—Sheet Products, 4.2c.4.1). Wilsonart **Type 107** (***HGS***—Horizontal Grade Standard) and **Type 350** (***HGP***—Horizontal Grade Postforming) are included in this category. These thicker composites offer suitable impact resistance for the rigors and abuse that horizontal work surfaces experience. While both products are designed for similar applications, Type 350 can be also postformed or bent with heat to create a profiled edge. Both of these products also fulfill the standard requirement for AWI/AWS—Section 11—Countertops, 4.2.5.1.

Technical Bulletin—Basic Types of Laminate

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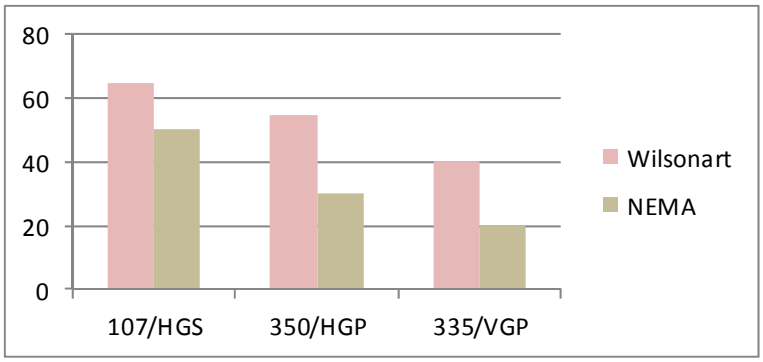
Overview—Vertical Grade

Vertical grade laminates are 0.020" -0.028" (AWI—Architectural Woodwork Standards—Section 4—Sheet Products, 1.2.23.2). Wilsonart **Type 335** (***VGP***—Vertical Grade Postforming) fits into this category. These thinner composites offer suitable impact resistance for vertical applications that will experience limited impact yet still require good surface durability. This product type can also be postformed. While VGP products are intended for vertical applications, they are often used for some horizontal applications where limited impact is anticipated, including office furniture and retail displays among others.

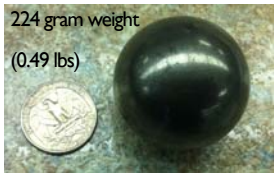
Key Differences Between Basic Types

Certain physical properties that differ between HPDL types include impact resistance, dimensional change percentages and radiant heat resistance. The charts below illustrate the ANSI/NEMA standard for each type, compared to the Wilsonart Laminate performance on the same test. Typically Wilsonart Laminates are manufactured to exceed industry standards.

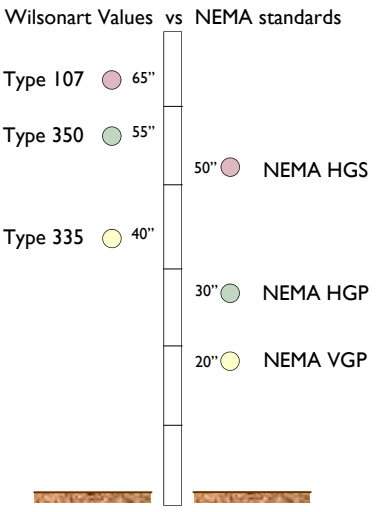
Radiant Heat Resistance—In Seconds



Test exposes HPDL surface to a radiant heat source. The heat source is similar to an automotive cigarette lighter coil positioned 5/16"(8mm) from the surface.



Ball Impact Resistance



The Ball Impact Test involves dropping a steel ball on the surface from various heights. For reference, the scale (left) is 6' tall.

Dimensional Stability is determined by measuring the amount of dimensional change over an extreme range of conditions (temperature and relative humidity). MD signifies "machine direction"; CD signifies "cross direction".

Dimensional Stability—% Change