

**Volume 9 No. 9****Woven Polypropylene and Unitary Carpet Backing Use**

Tufted carpets are manufactured by using, in some carpet “gauge” constructions, over 1,800 tufting needles in a 12 foot wide carpet to insert the pile yarn into a woven polypropylene backing (sometimes referred to as the “carrier fabric”). Woven synthetic primary backings consist of polypropylene weft yarns shuttled across warp yarns. The closeness of this weave is described as the “pick” count.

A woven synthetic secondary backing, such as Woven polypropylene, or more commonly known as “AB”, is laminated to the primary backing in a device on the coater referred to as a marriage roller. A water-emulsion synthetic latex, styrene butadiene rubber (SBR), is applied to the tufted primary backing to anchor the tuft’s yarn bundles. As the tufted primary backing passes under a puddle of same SBR latex compound, a blade forces the latex to penetrate into and around the yarn bundles. This process is followed by a second “coat” of this latex compound in order to laminate the secondary backing to the carpet to give it dimensional stability. Woven secondary backing, which is the most widely-used secondary backing, is made in a leno-weave, interlocking slit film and spun polypropylene yarns. AB provides tufted/laminated carpets with dimensional stability, as well as an extensible backing system that enables carpets to be installed by power stretching during the tackless installation method.

Other than the required “delamination strength” properties required when using a laminated secondary backing, a carpets tuft bind strength, and resistance to pilling and fuzzing, are obtained from the application of the aforementioned SBR compound, which typically contains a significant amount of a powdered filler, such as calcium carbonate.

Woven polypropylene is used extensively with residential grade carpets for the tackless installation, which includes the use of a suitable underlayment; the carpet pad (cushion) and tackstrip. Woven polypropylene can also be used with commercial grade carpets for the tackless installation method, although it has a limited range of use here because of the more rigorous demands of commercial foot traffic. And, because of the significant potential for wrinkling, buckling, and delamination, it cannot be used in commercial facilities where rolling traffic is present.

Woven polypropylene carpets can also be used for some commercial direct glue-down. Here again, because of the strength of the latex compound used to laminate this backing to its primary backing counterpart, and because of the strength it provides the tufts to resist pilling, fuzzing, and snags, its use in commercial installations is not always the best choice. To help alleviate these common commercial carpet installation concerns, carpet manufacturers will substitute the use of their standard SBR compound by using a much more rubber-rich compound known as Unitary Latex backing. The use of Unitary Latex backings is strictly for direct glue-down carpets. These carpets do not require the use of a laminated secondary backing, and Unitary Latex compounds provide commercial carpets with noticeably increased tuft bind strength, and resistance to piling, fuzzing, and edge ravel.

Other commercial carpet backings not discussed here include, but are not limited to our Omni Loc, and various versions of urethane, polyurethane, and hot-melt resins.

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