

Why is Hydrolox® Designed Without a Scrim?

This revolutionary fabric technology delivers robust performance as a fiber-supported structure

Many years ago, industrial filter media was almost exclusively produced from needlefelt reinforced with a scrim for mechanical support. During that era, needlefelt technology could not deliver the fabric strengths required for applications such as pulse-jet filtration in a baghouse. Eventually, needlefelt manufacturing technology improved enough whereby users began to employ felt without the use of scrim for reinforcement in several applications. Now, over 70% of felts used in dust collectors do not have a scrim.

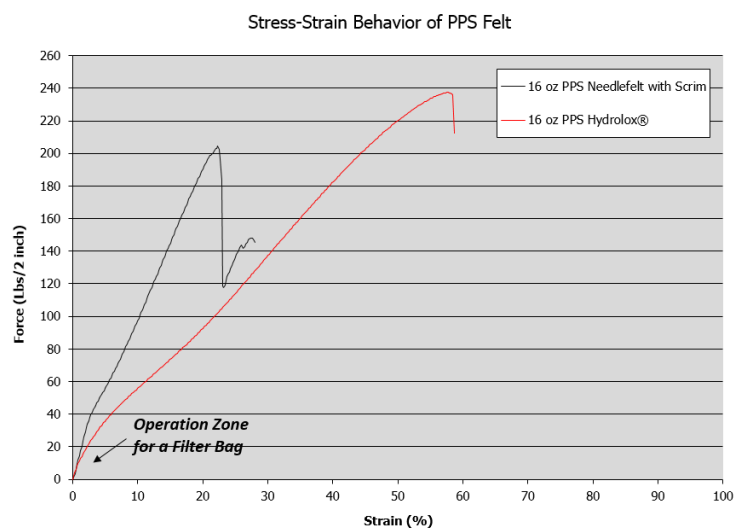
Today, filter bag manufacturers are selecting Hydrolox® for its superior filtration performance and strength characteristics versus conventional needlefelt. Hydrolox® filter media is made possible by a unique process designed by Bondex, an Andrew Industries company. High pressure water jets create such an immense entangling effect on the fibers during the production of Hydrolox® that the hydrofelt itself is stronger than the needlefelt with scrim, rendering traditional scrims obsolete for this new filter media technology.

Eliminating the scrim in the product design enables the following:

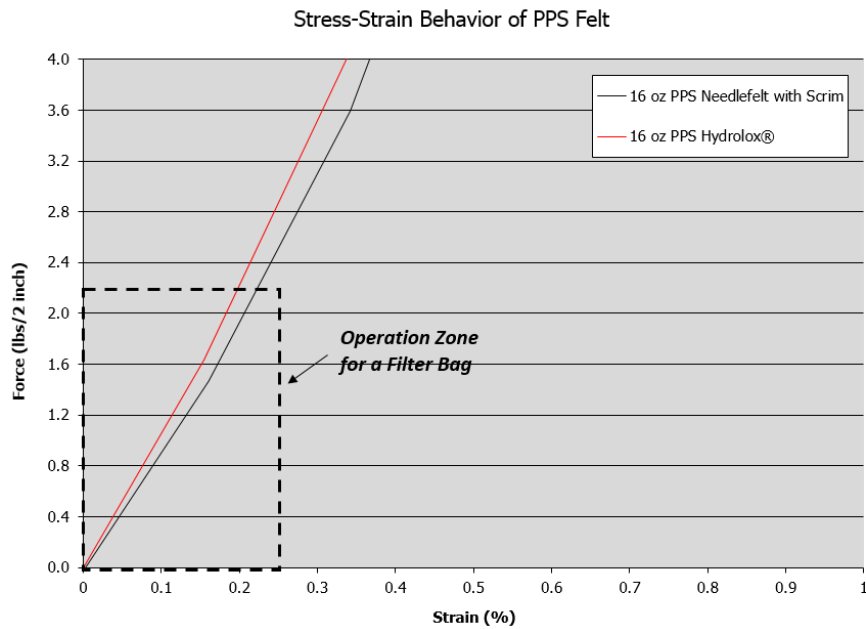
- All the fibers in Hydrolox® are used for filtration, delivering superior filtration performance
- Hydrolox® fabrics have better flexing characteristics
- Pulse cleaning intervals are longer

The robust nature of Hydrolox® is observed with the stress-strain behavior as follows:

Typical fabric mechanical strengths are quantified with a tensile test whereby the fabric is cut to two-inch wide strips and pulled on a tensile test instrument until failure (ASTM D5035-06). The result of these tests generates the stress-strain curves shown to the right. Looking at 16 oz. PPS needlefelt with scrim (black line), you can see the force required to break the strip of fabric is around 200 lbs. Repeating the test for a 16 oz. Hydrolox® material, designed without a scrim, required nearly 240 lbs before breaking (red line).



The stress-strain performance of filter media is interesting, and a sound way of evaluating material performance properties in general, but not representative of filter bag applications. The forces required to break fabric shown above are simply not present in filter bag applications. The actual forces on a filter bag derive from 1) weight of the fabric 2) weight of dust on the surface and inadvertently inside the bag and 3) pulse jet cleaning air pressure. It is highly unlikely that these forces would normally exceed 2.2 lbs per every two-inch section of material on the bag. For context relevant to the filter bag application, this normal operation zone is represented on the plot in the black box, where the maximum forces around 20 lbs per 6" diameter filter bag, generating less than 1% elongation on each of the fabrics. In this operation zone, the elongation is the same with Hydrolox® as with needlefelt with scrim.



Hydrolox® represents a step-change in technology which delivers superior filtration performance in a robust filtration fabric, ushering in an era of hydrofelt for industrial filtration applications. While the use of scrim in needlefelt has declined over the years, Hydrolox® is now accelerating this decline. The superior fiber entangling technology allows Hydrolox® to deliver substantial gains in filtration efficiency with a fiber-supported construction. Challenge conventional thinking and specify Hydrolox® for your filtration needs.

Contact Us

Interested in exploring how Hydrolox® would perform in your application? Please contact us at info@bondexinc.com to discuss how to work with your preferred filter bag supplier to execute a bag test.