DuPont™ Tyvek® HomeWrap® vs. R-Wrap® Housewrap

TECH TALK

Standard construction practices, such as stapling, moving ladders, or wrapping outside and inside corners, can damage the microporous film layer exposing the sheathing beneath the R-Wrap®.

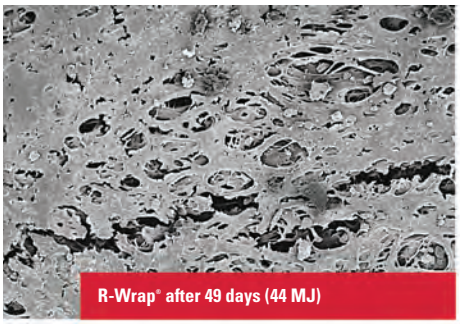
R-Wrap® is a laminated housewrap consisting of a layer of nonwoven fabric, known as CLAF® and a delicate, easily damaged microporous film. The lamination of the film to the fabric does not result in a continuous, fused sheet, but the film is necessary to give R-Wrap® its performance properties.

On the other hand, DuPont™ Tyvek® HomeWrap® is a continuous nonwoven sheet made of extremely fine high density polyethylene (HDPE) fibers that are fused together to form a strong, uniform web. The tough, fibrous structure is engineered to create extremely small pores that readily allow moisture vapor to pass through, but are so small that liquid water and air have a very difficult time penetrating.

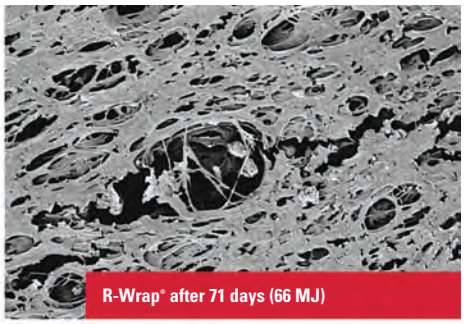
UV Performance

Although R-Wrap® has been reformulated for increased UV stability, it is still inferior to DuPont™ Tyvek® HomeWrap®. After exposure to real-time weather conditions at an independent Florida test facility, the film becomes brittle and cracked, while the CLAF® remains unchanged. Since the film is critical to the performance properties of R-Wrap®, any degradation, whether from abrasion or UV exposure, will reduce the air and water infiltration protection of the sheet.

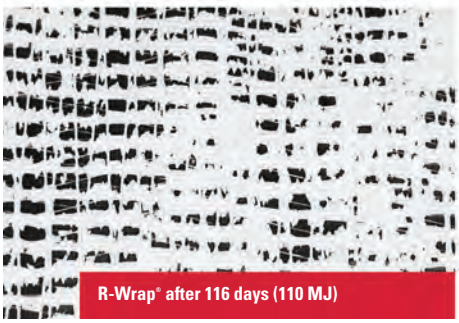
The upper micrographs (500x) illustrate how R-Wrap® begins degrading, with cracking becoming visible under a microscope after 49 days of weather exposure. The bottom photos show holes in the R-Wrap® sample visible to the eye with no magnification, and that the film and performance properties had effectively disintegrated after 116 days of exposure. Tyvek® HomeWrap® was virtually unchanged and performance properties remained intact after the same exposure.



R-Wrap® after 49 days (44 MJ)



R-Wrap® after 71 days (66 MJ)



R-Wrap® after 116 days (110 MJ)

Tyvek® HomeWrap® after 116 days (110 MJ)

DUPONT®

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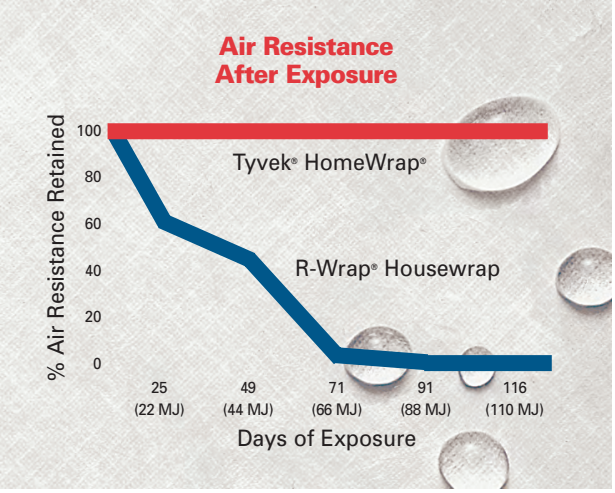
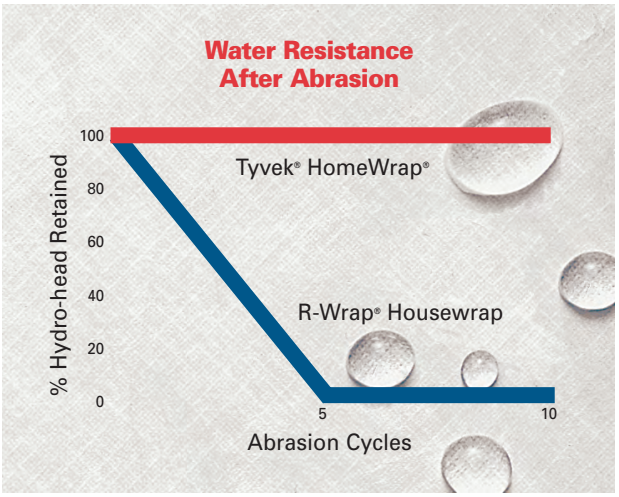
Property stability of DuPont™ Tyvek® HomeWrap® vs. R-Wrap® HouseWrap

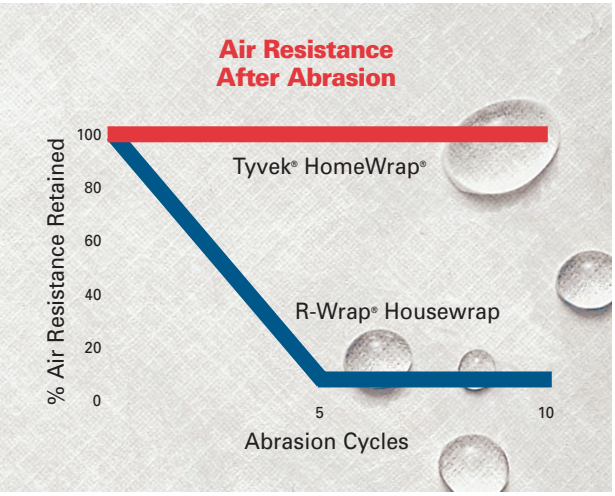
In UV exposure testing, air resistance of R-Wrap® dropped to 7% in only 71 days and air resistance was virtually non-existent after 91 days of exposure. Under the same exposure conditions, Tyvek® HomeWrap® maintained 100% air resistance.

Abrasion tests were conducted on both products. After only 5 cycles, R-Wrap® had no measurable water resistance, and less than 10% of its original air-resistance. Because the membrane properties are developed by a mechanically weak low density film, it is questionable whether R-Wrap® will withstand the rigors of field installation. Tyvek® HomeWrap® remained virtually unchanged when tested at the same abrasion exposure levels.





Hydro-static Head tested per AATCC Method 127. Abrasion conducted according to ASTM-3511, "Standard Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics, Brush Pilling Tester Method." All testing conducted by an independent laboratory on commercially obtained R-Wrap® and DuPont™ Tyvek® HomeWrap®.



Air Resistance tested per TAPPI T-460. Abrasion conducted according to ASTM-3511. "Standard Test Method of Pilling Resistance and Other Related Surface Changes of Textile Fabrics, Brush Pilling Tester Method." All testing conducted by an independent laboratory on commercially obtained R-Wrap® and DuPont™ Tyvek® HomeWrap®.

For more information about DuPont™ Tyvek® Weatherization System products please call 1-800-44-TYVEK or visit us on the web at www.Construction.Tyvek.com

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