

Case Study

The Problem:

Band marks from packaging on flexible PVC (FPVC) astragal at the time of door installation. The band marks were predominately noticed on doors that had been through high temperatures between manufacturing and installation.

The Requirements:

An enhanced astragal that needed to have minimal cost impact and minimal change in low temperature performance.

The Test:

Determine the right combination of profile and material/formulation changes that can improve material bounce-back.

The Solution:

A higher molecular weight resin base, in a durometer 5 points higher.

Enhanced Performance Astragal

A long-time, large OEM customer reported an issue with some of its customers seeing band marks from the packaging on their Flexible PVC (FPVC) astragal at the time of door installation and approached Torsion Source for support with research and development of an enhanced astragal that would help to eliminate this problem.



The band marks were predominately noticed on doors that had been through high temperatures, up to 140°F, between manufacturing and installation. Torsion began to investigate solutions that would reduce the marks and have a minimal cost impact and minimal change to low

temperature performance. Based on preliminary testing, which showed similar rebound after bands were removed, it was determined that a combination of material change, and profile change could be the solution to the customer's problem.



Torsion Source initially looked at astragal designed with a tapered web. The decision was made to modify the design and create a step in the webbing. This helped to give rigidity to the "T" areas. Testing was then conducted on samples in the new profile with the following variations in material (pictured in order

above): (1) our current material grade, (2) our current base resin, but in a durometer 5 points higher, (3) our current base resin, but in a durometer 10 points higher, (4) a higher molecular weight resin base in our current durometer, and finally, (5) a higher molecular weight resin base, but in a durometer 5 points higher. Based on our testing, option 5 proved to be the best solution. The OEM customer has started to use the new enhanced astragal design and its customers are happy with the new material's bounce-back results.



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