

Consumer Applications

Grass Trimmer

A yard-tool manufacturer cuts fuel waste and boosts the performance of its grass trimmers with a unique filtration system designed by Porex. The system features a special filter material that does not absorb fuel or compromise flow rates – plus a weighted-filter design that provides continuous fuel to the engine, regardless of the trimmer's position.



Design Challenge

Manufacturers of two-cycle yard tools such as chain saws, edgers, blowers and line trimmers have seen an explosive growth in sales over the last twenty years. During this time, reliability and performance have increased substantially, largely due to continuous improvements in equipment design and manufacturing processes. It was therefore not surprising when an equipment manufacturer approached Porex looking for a unique cost-effective filtration solution that would provide continuous fuel availability irregardless of the yard tool's position (e.g., tilted or upside down).

Solution

Porex engineers selected a polyethylene-based polymer as the filter material based on its compatibility with a two-cycle gasoline mixture. A determining factor in the selection was a polymeric structure that would not absorb fuel, which would affect the pore size and compromise filtration efficiency and fuel flow rates. Secondly, the engineers focused on developing a solution that would provide fuel to the engine regardless of the equipment's orientation. The old design included a fixed filter inside the bottom of the fuel tank. When the fuel level decreased, it was possible to cut off the fuel supply by tilting the equipment. Working together, the manufacturer's equipment designers and Porex's engineers solved the design challenge by using a weighted filter design. This design ensured that the filter would fall to the lowest possible position inside the gas tank regardless of equipment orientation.

Results

Similar to many other Porex innovations, the solution was integrated into the functional design of a consumer product to enhance performance and marketability. While the Porex solution may not be apparent on the surface, it plays an integral role in adding greater value for the end-user and the manufacturer.

By combining ideas, know-how and proven results with the highest standard of innovation and excellence, POREX Porous Media provides unique solutions for various applications.

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