

## Consumer Applications

### Power Tools

A manufacturer of consumer-grade sanders cleans shop with a patented air filter designed by Porex. The single-component, reusable filter traps dust in the most rugged and demanding sanding applications.



### Design Challenge

A power tool manufacturer required a rigid, rugged, reusable air filter suitable for use in consumer-grade orbital and finishing sanders. To facilitate assembly, design objectives called for a patented single component solution, mated to an injection-molded interconnect for assembly onto the sander. In addition, the manufacturer required that airflow through the filter be optimized for given particle filtration efficiency and pressure drop specifications.

### Solution

Selection of the base polymer was a key consideration, as with most air filtration development projects. Critical variables included wall thickness, surface area, pore size and pore morphology. Using a modeling program and several prototype designs, Porex engineers developed a 120-140 micron sintered polyethylene material that fulfilled all of the design specifications.

### Results

The single-component, molded Porex filter provided a robust solution for trapping sanding dust in the most demanding consumer sanding applications. The rigid canister was designed with the optimum size, large enough to hold an adequate volume of sanding dust, yet small enough to avoid interference with the sander's operation. The canister's interior volume, surface area and material characteristics also work together to optimize particulate capture efficiency and airflow rates. License information available upon request.

*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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