**Application Story**

GUR® ultra-high molecular weight polyethylene (UHMW-PE)

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**Sintered-Plate Filters from Herding Gain Strength, Durability and Porosity with GUR® UHMW-PE**

**New UHMW-PE Grade Created for the Filters Balances High Strength and Pressure Drop**

When Herding, a leader in surface filtration technology based in Germany, needed a strong and durable microporous matrix for the latest generation of its sintered plate filters, it turned to GUR® ultra-high molecular weight polyethylene (UHMW-PE) from Ticona.

A new GUR grade created for the filters provides the proper particle shape and pore size distribution to balance high strength and low pressure drop. The UHMW-PE also provides essential chemical and thermal resistance (to 160°F) and hydrophobic properties, as well as high dimensional stability and flexural rigidity so the filters can be installed as self-supporting elements.

The filter elements, which have a fluoropolymer (PTFE) coating, offer high separation efficiencies and create clean gas particulate levels below 1 mg/m³ in the sub-micron range. The 10- to 20-kg filter elements remove fines from process and exhaust streams in the paint, chemical, laser-cutting, mining, glass and other industries.

The elements are produced by sintering the UHMW-PE to form a highly porous matrix and then coating the matrix with a PTFE suspension. The result is a wear-resistant, non-stick, microporous surface that readily entraps particles passing over it.

The filters have a five-to-10 year service life, even in the presence of abrasive dusts. This is much longer than that of polyester non-woven bags, which often must be replaced in a matter of weeks. Dust is removed from the filter surface by periodic jets of compressed air.
The units can be regenerated repeatedly by removing the fluoropolymer surface coating and applying a new one.

Herding UHMW-PE sintered-plate filters are used in chemical processing because they are highly inert and in a wide range of paint exhaust systems, especially those for powder coating where a silicone-free material is needed. The filters also are used to remove plastic, steel and other dusts generated during laser and welding operations, as well as abrasive fines from quarrying, mining, and glass and ceramics production. In addition, manufacturers use them to create cleanroom environments and to recover raw materials.

GUR ultra-high molecular weight polyethylene has excellent abrasion resistance and toughness and a low coefficient of friction. It is typically used in industries ranging from bottling and papermaking to chemicals and shipping. In addition to industrial dust filters, it is a good candidate for such demanding applications as conveyors, bulk container and truck linings, dock fenders, ski and snowboard bottoms, and drinking water filters.

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