

## Ideal baking conditions with Fortron® PPS

For better results in baking and roasting, kitchen appliance manufacturer Miele has developed a novel oven function known as “moisture plus”, which automatically takes in the right amount of water and dispenses it as jets of steam into the oven cavity. This makes bread deliciously crusty and meat joints tender on the inside while beautifully crisp on the outside.

For this moisture-enhanced cooking, the appliances in the H5000 series are fitted with a special water tank. This was developed to production readiness in a collaborative venture between distributor K.D. Feddersen, polymer processor Koetke and Ticona. The material used for the tank is Fortron® PPS.

This oven water tank application makes considerable demands on the polyphenylene sulfide (PPS) material. Excellent dimensional stability, low moisture permeability and minimal water absorption, even under high thermal stresses, were crucial factors in the decision to choose Fortron® PPS. Another key advantage of the high performance polymer is that it can be processed by extrusion blow molding. This

allows parts with complex geometries to be produced. It also eliminates the need for downstream operations, such as the welding of individual components, which would be required if the water tank was produced by injection molding.

### Fortron® – the perfect ingredient

The PPS water tank is exposed to temperatures of up to 220 °C. But Fortron® MT9115L0 DW does not deform under these extreme conditions – the polymer is suitable for continuous

service temperatures of up to 240 °C and even for short-term peaks up to 270 °C. The polymer also meets the special requirements for food preparation. It has successfully passed testing requirements according to all commonly accepted drinking water standards throughout the world (NSF61, KTW, W270, WRAS, ACS) and complies with EU Directive 2002/72/EC as well as the Food and Drug Administration (FDA) requirements relative to contact with food.

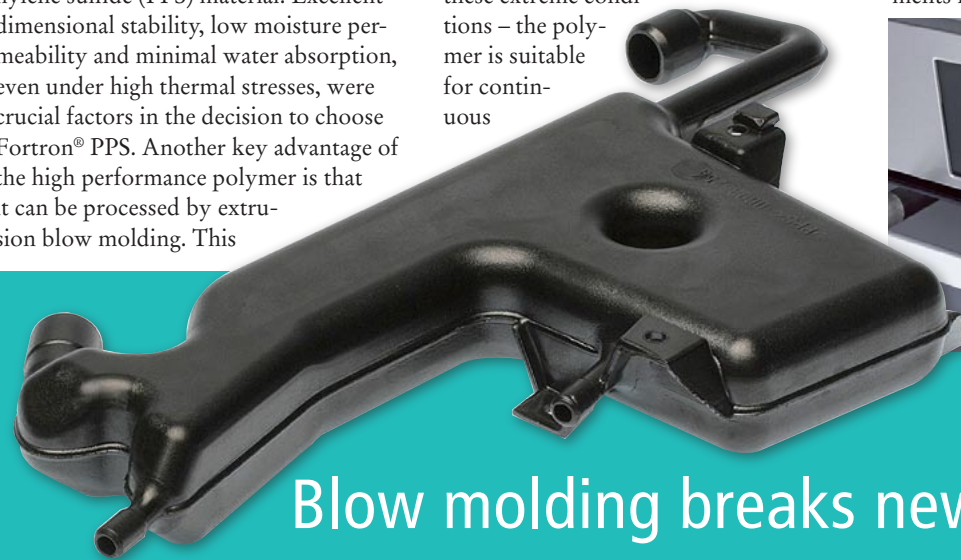


photo: Miele

With the convective steam cooking function, Miele ovens deliver perfect results. A water tank made from Fortron® PPS is an important part of this system.

## Blow molding breaks new boundaries

A clever product idea on its own isn't enough – ultimately the production costs also have to be right. That's why hollow components like the water tank in the Miele oven are produced by blow molding, which is far more efficient than injection molding: This eliminates the need for the subsequent welding of components and reduces processing requirements. In addition, the component made from a single mold is less prone to failure, as it has no seams.

Bottles, canisters, floats or fuel tanks for gardening equipment and also hollow components with highly complex geometries can be produced by means of blow molding. But in order to achieve the best results, one of the things that also have to be just right is the viscosity of the polymers used. That's why Ticona's portfolio also includes special grades of Hostaform® POM, Vandar® PBT, Riteflex® TPC-ET and Fortron®

PPS – grades that the company has specifically tailored for this processing technique.

### Fortron® for extrusion blow molding

The water tank for Miele's convection steam oven system, for example, is produced by extrusion blow molding. The Fortron® MT9115L0 DW used here was specially developed for this processing technique. The challenge

was to combine the highly consistent viscosity of the linear polymer with the melt strength required for the extrusion blow molding process. This prevents cross-linking reactions and the resulting process variations. Pipe, hollow components or semi-finished products can be produced in extraordinarily high quality. Other benefits of the polyphenylene sulfide (PPS) include its high purity and thermal stability.