

# News Release

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## For the perfect cup of coffee

- **Household appliance manufacturer De'Longhi uses polyethersulfone (PESU) by BASF for upper piston of brewing unit in coffee machine**
- **Ultrason® E 3010 MR shows excellent mechanical strength, dimensional stability and hot steam resistance**
- **For easy processing by injection molding and subsequent assembly of complex parts in household appliances**

The Italian household appliance company De'Longhi, Treviso, now uses Ultrason® E 3010 MR to manufacture the upper piston of the brewing unit in its new coffee machine Magnifica Ecam 22. The polyethersulfone (PESU) by BASF contributes to the durability of the coffee maker by showing high heat and steam resistance up to 180°C, good mechanical properties as well as excellent dimensional stability at varying temperatures over a long period of time. It meets De'Longhi's strict requirements regarding food contact and safety as well as processability and subsequent assembly. The injection-molding grade is optimized for easy demolding especially of complex parts. This combination of nearly temperature-independent mechanical properties with the absence of harmful substances allows Ultrason® E 3010 MR to outperform materials like polyetherimide (PEI) which is also used in coffee machine applications.

De'Longhi needed a material for the piston that withstands the high pressure and hot steam occurring during coffee making over the service life of the machine. Ultrason® was selected because components made of Ultrason® E can be repeatedly exposed to superheated steam and largely retain both transparency and high mechanical strength. Tests conducted according to different ISO standards have shown that Ultrason® E 3010 MR maintains its excellent mechanical properties even after 2,000 cycles of repeated steam sterilization at 134°C, also demonstrating a high resistance to stress cracking. These attributes supported the development of the ideal mold for the part using a mold flow analysis with BASF's simulation tool Ultrasim®.

The high-performance thermoplastic Ultrason® E 3010 MR is approved for food contact according to American and European specifications and contains no harmful substances. "We appreciate the characteristics of BASF's Ultrason® in this important component of our coffee machine", says Ruena Moro, plastic raw material buyer for Europe at De'Longhi. "It contributes to the very good performance of the brewing unit which is the heart of any coffee machine. The upper piston is a complex technical part exposed to high stress in a challenging environment with superior demands on its continuous-use properties."

The higher-viscosity grade can be processed by injection-molding - even for manufacturing parts with complex geometries like the upper piston which has long, filigree screw inserts with thin walls. This means long flow paths which have to be filled without air voids. Ultrason®'s good mechanical properties allow the piston to be securely mounted to the brewing unit with screws. "The demands on household appliances are both manifold and uncompromising", says Georg Graessel from global business development Ultrason® at BASF. "We are proud that we collaborated successfully with De'Longhi in fulfilling their challenging requirements for such a complex part. This cooperation demonstrates that with our Ultrason® portfolio, we can offer our customers the ideal material for durable and safe household appliances, a reliable, high-quality material supply and the corresponding technical services."

Ultrason® is the trade name for BASF's product range of polyethersulfone (Ultrason® E), polysulfone (Ultrason® S) and polyphenylsulfone (Ultrason® P). The high-performance material is used to manufacture lightweight components in the

electronics, automotive and aerospace industries, but also in water filtration membranes and in parts that come into contact with hot water and food. Because of their extraordinary property profile the Ultrason® brands can substitute thermosets, metals and ceramics.

For more information: [www.ultrason.basf.com](http://www.ultrason.basf.com)



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