



ULtra|POLYMERS

 **BASF**

The Chemical Company

## Clear view under heat

### High-performance plastic Ultrason in firefighter's helmets

The new high-performance plastic Ultrason® E2010 HC, a BASF PESU (polyether sulfone), has recently been put to an extraordinary use. The PAB company, a manufacturer of safety equipment headquartered in Buzet, Croatia, is using the highly transparent HC variant (HC = high clarity) of this material for the visor of its very heat-resistant firefighter's helmet, the FIRE HT 04. This is the first commercial application for this new type of plastic.

The firefighter's helmet and its visor - developed to meet particularly demanding requirements - have to resist a temperature of 250°C [482°F] for 30 minutes without being damaged. This protective gear even has to be able to withstand a temperature of 1000°C [1832°F] for ten seconds. Thanks to Ultrason E's glass-transition temperature of 225°C [437°F], it lends itself quite well for this purpose. Along with its high temperature resistance, another important property of this material is its inherent fire safety (that is to say, fire safety without the addition of flame retardants). The toughness of this transparent plastic makes it very break-resistant, even under extremely rough conditions. The helmet and the visor can be efficiently produced by means of injection molding, so that even complex shapes with integrated functions can be easily achieved. The helmet weighs a mere 1.2 kg, which makes it very comfortable to wear.

In developing the new Ultrason variant, BASF succeeded in optimizing the production conditions in such a way as to drastically reduce the typical inherent yellow color of the plastic, thus attaining excellent visual purity. Consequently, the



**The visor of the firefighter's helmet FIRE HT 04, manufactured by the PAB company headquartered in Buzet, Croatia, is made of Ultrason® E2010 HC. This high-performance plastic is not only very temperature-resistant and lightweight, but also highly transparent, tough and resistant to chemicals.**

HC type combines high clarity with the properties that are characteristic for Ultrason E: resistance to hydrolysis, chemicals and high temperatures. This combination of properties opens the door to new applications such as viewing windows in household appliances.

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Ultrapolymers Ireland Ltd  
Bracetown Business Park  
Clonee  
Co. Meath  
Tel: +353 (0)1 801 4050  
Fax: +353 (0)1 801 4140

Ultrapolymers Ltd  
Spencer House  
97 Dewhurst Road  
Birchwood, Warrington  
WA3 7PG  
Tel: 01925 282300  
Fax: 01925 282301

E-mail: [sales@ultrapolymers.co.uk](mailto:sales@ultrapolymers.co.uk)

[www.ultrapolymers.co.uk](http://www.ultrapolymers.co.uk)