

Ultramid[®] and simulation instrument Ultrasim[®] in use with fire extinguisher valves

Case Study

The main valve body of the new fire extinguishers is molded from the special polyamide grade Ultramid[®] T KR 4355 G10 from BASF. This challenging plastic part replaces a brass predecessor in the main valve of the extinguisher. It was developed by Multiplast for the European fire extinguisher market. Directly after the beginning of the serial production, Tyco has switched to the new valve for about 90 percent of its product range.

The main valve is a multi-function component that integrates the connections for the internal riser pipe, the hose with the spray gun, the trigger mechanism and the handle. To operate reliably, the manufacturer requires that the valve withstand a pressure of 80 bar between minus 30 and 60 degrees Celsius over a service life of 15 to 20 years. Such an application requires that the plastic exhibits high heat resistance, high strength and stiffness as well as high dimensional stability. The material must ultimately pass a number of safety tests before it can go into volume use on fire extinguishers. These include investigations of the service life, the burst pressure, the resistance to fire extinguishing agent and the stability after long-term UV-light exposure.

To develop the complex component efficiently, fast and reliably, BASF employed its Ultrasim[®] simulation tool.

