

Stieler foams and cools in one

German fluid assisted injection moulding consultancy Stieler Kunststoff Service has developed a physical foaming system – SmartFoam – in which liquified carbon dioxide is injected via cold or hot runners into the polymer melt during injection to produce a foam structure.

Aside from yielding a foam structure in the moulding, evaporation of the CO₂ also cools the cavities to an extent that Stieler

says cannot normally be achieved with conventional cooling methods.

The SmartFoam system was demonstrated at Fakuma in production of foamed wine corks using a DSM TPE grade in a four-cavity mould from Zahoransky. The mould was fitted in a standard 35-tonne Demag Viva machine, with the liquid foam media introduced via a modified Husky hot runner.

Stieler says the use of the SmartFoam system has cut cycle time from typically 2.5min using conventional chemical foam moulding to less than one minute.

The production process is similar to sandwich moulding. The cavities are pre-filled with melt to form a solid skin, which is forced against the cavity walls by the pressure of expanding gas in the core.