

## **Process Monitoring Along the Extruder**

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### **Abstract**

Monitoring the evolution of physical, mechanical and chemical effects along the extruder upon the preparation of innovative polymer systems is an important tool for process optimisation. This work presents some on-line monitoring concepts that allow sample collection, rheology measurements and RTD characterization at specific locations along the screw axis. Examples of the use of such tools for the study of some polymer systems are also discussed.

### **1. Aim & Scope**

Extrusion is not only a major plastics processing technology, but is also an important tool for the manufacture of new advanced materials, compounds and composites. The input of thermal energy and mechanical stresses to the polymer system being processed induces the development of physical, mechanical and chemical effects along the screw, which will determine the final characteristics of the extrudate [1,2]. Thus, process optimisation requires the understanding of the evolution of those phenomena along the extruder, and how they are affected by changes in equipment geometry