

Capillary Rheometry, Thermal Stability

ASTM D3835

Scope:

Capillary Rheometry measures apparent viscosity (resistance to flow) using a broad range of shear rates at specific temperatures. This produces a materials apparent viscosity for use in Mould Flow Design Analysis. The viscosity information is also critical in being able to compare materials, to determine processing parameters, for lot-to-lot quality control, to measure processing degradation, which could reduce physical properties, and to study thermal stability.

Test procedure:

Standard temperatures, and shear rate parameters are selected. In a Shear Sweep the plastic melted is extruded through twin capillaries dies, the force at varied shear rates is determined. Thermal Stability, the plastic melted is extruded through a capillary after varied periods of residence time in the barrel.

Specimen size:

An appropriate sample of the typical material batch at least 30g of material are required.

Data:

In a Shear Sweep, shear stress and shear rate are calculated and plotted, for apparent melt viscosity. Thermal Stability, apparent melt viscosity is calculated and plotted versus residence time.

