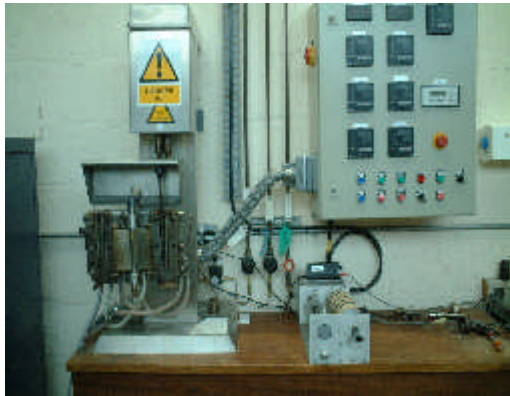


Rheology in Polymer Processing

Intertek MSG has a range of small scale polymer processing kit that can handle as little as 50g of sample. Our bench top twin screw extruder (hopper volume 15cm³) is able to compound/blend samples at temperatures up to 350°C. A haul off facility enables lace samples to be collected prior to cutting/ pelletisation etc. We also now offer injection moulding facilities on our 40 tonne Engel electric machine. Both tensile and impact test pieces can be moulded and polymer flow properties studied with a fully instrumented spiral flow mould.

Air and vacuum drying facilities are also available for preconditioning of samples.



The Intertek MSG Rheology Laboratory is also equipped with state-of-the-art capillary and rotational rheometers able to characterise polymer, liquid and adhesive samples over a wide variety of shear and extensional conditions.

A summary of the capability is given below:-



CAPILLARY RHEOMETRY

Shear / extensional viscosity curves - infers comparative molecular weight, MWD and polymer chain structure.

Extrudate appearance - stress at onset of melt fracture, trapped volatiles etc.

Direct measurement of die swell properties.

Wall Slip measurements.

Melt stability.

Metal contact effects (via GPC).

ROTATIONAL RHEOMETRY

Very low shear rate analyses provide information on molecular weight.

Gellation times can be determined for a wide range of materials, including epoxies and adhesives.

Melt Stability in air or nitrogen atmosphere and/or against a range of metal surfaces.

Effect of temperature on flow properties at fixed deformation rates.

Thixotropy through controlled stress measurements of structured fluids.



DIE SWELL FACILITY IN CLOSE UP

PROCESS & RHEOLOGICAL CONSULTANCY

Many, if not all production processes involving plastics require a detailed understanding of material flow behaviour (rheology) in order to optimise processing conditions and minimise costs.

The Wilton Centre Rheology and Processing laboratory can provide a consultancy service to the plastics, pharmaceutical and chemical industries and help in product development, process optimisation and cost reduction. In addition to this service we also offer testing (both routine and non-routine) and evaluation of all polymer melts, solutions and complex fluids.

Our laboratory is equipped with state-of-the-art processing and measurement facilities and our experience in problem solving/characterisation of a wide range of polymeric materials is second to none.

Data produced can, and has, been used in commercial flow solvers as well as helping our partners more closely understand their processes. We also offer an expert witness service.

Examples of industry sectors using our services include:-

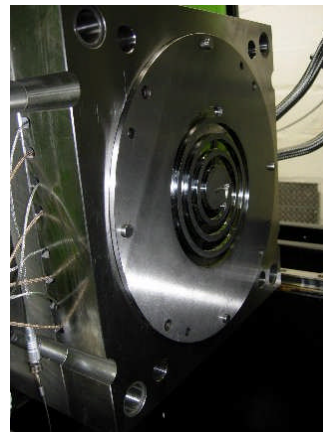
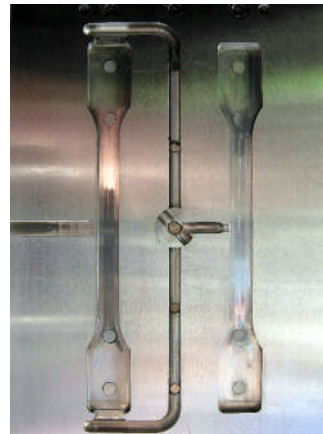
- Polymer Extruders.
- Injection Moulders.
- Sheet and Bottle Forming.
- Paints
- Adhesive Manufacturers.
- Thermosetting materials
- Personal care Products.
- Slurries.

To learn more about Intertek MSG's Rheology and Processing services please do not hesitate to **contact us:-**

Dave Stocks
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Wilton
Redcar
Cleveland.
TS10 4RF

Tel: (44) (0)1642 435770
Fax : (44) (0)1642 435777

e-mail: dave.stocks@intertek.com



If you would like to learn more about other facilities offered within Intertek MSG and how they might help your business, please address your enquiries to Drs Simon Allen or Allan Stewart at the numbers below.

Telephone: (44) (0)1642-435788 or 435766
Facsimile: (44) (0)1642-435777

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