



HIGH-TEMPERATURE VISCOSITY

Glass Technology Services Ltd. is an independent laboratory providing a comprehensive range of services related to glass manufacture and use. Our services are backed by experienced, multi-disciplinary staff specialising in all aspects of glass technology.

The temperature - viscosity relationship of glass is directly linked to its chemical composition. Knowledge of this relationship is necessary for determining melting and heat treatment regimes in glass manufacture and processing. A standard measurement may include viscosities at temperatures between approximately 800°C and 1400°C, although this range can be extended if necessary. This measurement range is sufficient for most commercial glasses, allowing extrapolation to higher and lower temperatures if required.

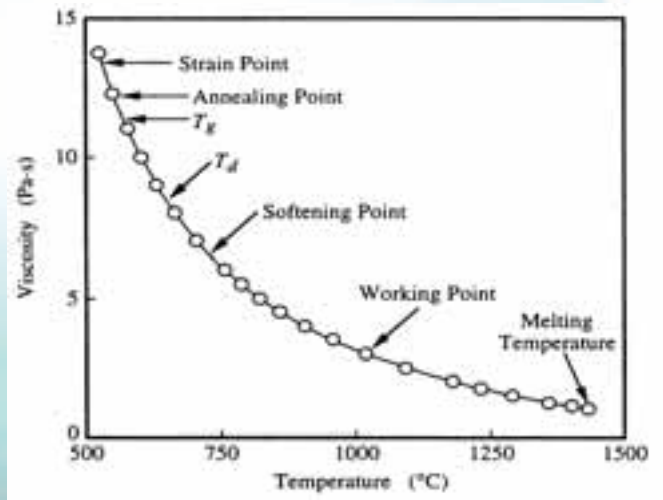
For container glasses, float glasses and a range of other compositions, GTS also offer predictive computer modelling of the viscosity – temperature relationship. This is an inexpensive, rapid turnaround service, although in certain circumstances we recommend measurement in conjunction with predictive modelling.

- High Temperature Viscosity Measurement is offered as a Rapid turnaround Predictive Modelling Service

WHAT CAN THIS TECHNIQUE DO FOR ME?

Measurement of High Temperature Viscosity allows a fuller understanding of glass properties. By determining the fixed points for glasses, shown in the diagram, it is possible to accurately estimate the working range and the relative machine speed of different glass compositions.

Glass articles or fibres must often be melted and formed within tight viscosity ranges, so it is vital to know exact temperature – viscosity relations for different glasses, as these will be affected by composition, melting behaviour, time, temperature and other factors, all of which may impact upon production.



One customer wished to investigate the effects of introducing a new material in their glass composition. GTS were able to demonstrate the effects of different levels of addition on viscosity, and hence the probable consequences on production. GTS expertise and assistance in data interpretation allowed the customer to make the correct additions for the required effect on production.

RELATED SERVICES:

- Dilatometry - For thermal expansion, glass transition values
- Differential Thermal Analysis (DTA) - For batch reactions, phase changes, glass transition values
- Liquidus Temperature - For crystallisation behaviour of glasses and ceramics
- Littleton Softening Point - For ASTM standard method C338 and equivalents
- High Temperature Electrical Measurements – For high temperature resistivity

If you would like to know more about these, our other services, or any other aspect of glass technology please contact us.

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