Cambridge Polymer Group
Cement Extrusion Tester (CET-1™)

Cambridge Polymer Group is pleased to announce the release of the latest member of our instrumentation product line, the Cement Extrusion Tester (CET-1™).

The CET-1™ is a simple to use instrument for characterizing the viscosity of viscous materials such as bone cement, cements, adhesives, gels, pastes, ointments, and any time-changing materials. More cost-affordable than shear and capillary rheometers, and more compact and simpler to use, the CET can be used for quality assurance and research testing.

Rapid, low-cost determination of cement curing kinetics

Measurement of cement curing kinetics is critical for both R&D and quality control, but has traditionally required use of either complex and costly rheometers or highly variable qualitative tests for handling characteristics. The new Cement Extrusion Tester (CET) provides accurate curing kinetics data and quantitative determination of handling characteristics from a single, rapid test.

Designed for analysis of PMMA bone cement, the CET can provide accurate viscosity data for any reacting system with viscosity in the range of 50-5000 Pa*s, including:

- Quality control
- Validation
- Rapid R&D screening
- Biomedical materials testing
- General cement cure times

Principles of operation

A reacting sample is loaded into a standard disposable syringe and placed in the CET syringe holder. The CET then extrudes the sample from the syringe at a constant displacement rate and measures the applied extrusion force and syringe temperature. Sample viscosity is calculated in real-time during the extrusion from force/displacement-rate calibration data obtained from NIST-traceable standard fluids of known viscosity, allowing dynamic measurement of viscosity and reaction temperature thresholds. An optional temperature control system allows pre-test conditioning of the sample chamber to ensure consistent test conditions, or stable control of sample temperature during testing.

Instrumentation

The CET is a compact instrument that easily fits in a fume hood or other controlled environment, and is extremely simple to set up and operate. All sample fluid is contained in disposable syringes for high throughput and minimal cleaning. The system can easily be modified to support a wide range of syringes or custom extrusion barrels, allowing characterization of materials in the application-specific geometries. Custom control software provided with the instrument allows execution of tests, review of data files, and saving and printing of HTML test reports.

Cambridge Polymer Group, Inc. is an ISO 9001:2008 certified contract research laboratory specializing in polymeric materials. We provide routine analytical testing on materials, custom test design, failure analysis, consultation, instrumentation, custom polymer and hydrogel formulation, and out-sourced research.

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