TA INSTRUMENTS
TA Instruments’ history of meeting customer needs for high technology products, quality manufacturing and strong after sales support has earned us worldwide recognition as the leader in thermal analysis and rheology instrumentation.

Based in New Castle, DE (USA), we have offices throughout USA, Europe, Japan and Australia and employ a network of quality agents in other countries.

The TA Instruments history of innovation is long and impressive. The Q Series DSC & TGA and the AR 2000 Rheometer are the most recent innovations resulting from our continuous investment in Research and Development.

Our goal is to provide you with reliable, high performance products and support that maximize your benefit from them. This includes multiple levels of training and service that have been consistently ranked #1 in independent surveys.

We look forward to the opportunity to earn your business, make your work more productive and become your preferred partner in materials characterization.

Sincerely

Patrick Y. Howard, Ph. D.
President
QUALITY PRODUCTS
TA Instruments products are manufactured according to ISO 9002 procedures at facilities in New Castle, DE (USA) and Leatherhead (UK) by our experienced staff, who take pride in the quality they build into each instrument.

FAST INSTRUMENT REPAIR
Our experienced service team offers prompt, cost-effective equipment repair on request, or under annual maintenance agreements. Certified calibration services are also available.

COMPREHENSIVE TRAINING
Training begins with professional system installation and basic instruction by an experienced service engineer. More formal training is available in courses scheduled worldwide throughout the year. Our telephone "hotlines" are staffed daily to answer your questions.

RAPID SHIPMENT OF PARTS & CONSUMABLES
Our ability to stock and promptly ship replacement parts and consumables is vital to the continuous operation of your instrument. Our customer service coordinators (CSR's) are ready to provide information and process your orders for rapid shipment.
**DSC**

**DIFFERENTIAL SCANNING CALORIMETERS**

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**DSC Q1000**

DSC measures heat flows and temperatures associated with transitions in a material. The Q1000 is our top-of-the-line research-grade DSC, with unsurpassed performance in baseline stability, resolution and sensitivity. It offers our patent pending Advanced Tzero™ technology, the most powerful DSC technology commercially available. The Q1000 is a complete DSC that includes advanced MDSC®, an intelligent 50-position autosampler, and digital mass flow controllers. A full complement of cooling devices is available for the Q1000, which can be used over the temperature range –180 to 725°C. The Q1000 is well equipped to handle the most demanding DSC applications.

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**DSC Q100**

The Q100 is a versatile research-grade DSC with our patent pending Tzero technology. With many Q1000 performance features, the Q100 easily outperforms competitive research models. It is an expandable module, to which MDSC®, a 50 position autosampler, and digital mass flow controllers can be added. Innovative technology, performance, upgradability, and ease-of-use make the Q100 a desirable addition to any laboratory. A full complement of cooling devices is available for the Q100, which can be used over the temperature range –180 to 725°C.
The Q10 is a cost-effective, easy-to-use, general purpose DSC with basic performance features equivalent to many competitive research models. It is ideal for research, teaching, and quality control applications that require a rugged, reliable, basic DSC. A full complement of cooling devices is available for the Q10, which can be used over the temperature range -180 to 725°C.

**Autosampler**

The Autosampler accessory provides reliable unattended operation of the Q1000 or Q100 DSC in any configuration, even with the use of cooling accessories. It is an integrated system that enhances productivity. Its features include a patent pending optical sensor that ensures accurate sample placement, and a 50 sample pan, 5 reference pan carousel. Maximum productivity is achieved when the autosampler is used in conjunction with autoanalysis. The autosampler is a powerful tool for the research and analytical laboratory.

**Modulated DSC®**

M DSC®, is a patented technology* whose benefits include increased sensitivity for weak transitions, simultaneous optimization of sensitivity and resolution, improved interpretation of complex transitions, and measurement of heat capacity and thermal conductivity. M DSC® is available for the Q 100, and an advanced version of M DSC® is standard on the Q 1000.

*U.S. Patent Nos. B1 5,224,775; 5,248,199; 5,335,993; 5,346,306; 5,439,291; 5,474,385
Europe Patent No. 0559362  Canadian Patent No. 2,089,225
TGA measures weight changes in materials to determine composition and thermal stability. The Q500 is TA Instruments top-of-the-line research-grade TGA. Its efficient low mass furnace, ultra-reliable thermobalance, unique purge gas system (with mass flow control), and advanced automation provide for superior TGA performance from ambient to 1000°C. Optional accessories include Hi-Res® TGA*, Modulated TGA, the EGA furnace and an autosampler. Hi-Res® TGA improves the separation of closely occurring events. MTGA™ uses a modulated temperature program to obtain kinetic data more rapidly than the standard ASTM method. The EGA furnace is a quartz-lined version of the standard furnace that is ideal for MS and FTIR operation. The Q500 is an expandable system that is well equipped to handle TGA applications, from the routine to the most demanding.

*U.S. Patent No. 5,165,792

The Q50 is a cost-effective, easy-to-use, general purpose TGA with many of the basic features of the Q500. It offers performance superior to competitive research-grade models. The Q50 is ideal for laboratories that need a high quality TGA for standard applications within the temperature range ambient to 1000°C. When equipped with the quartz-lined EGA furnace, the Q50 is an ideal instrument for coupled use with MS and FTIR analyzers. TA Instruments offers an optional bench-top mass spectrometer.
**AUTO SAMPLER**

The Q 500 Autosampler accessory is a programmable, multi-position sample carousel that allows overnight or “round-the-clock” automated analyses, in a random or sequential fashion, of up to 16 samples. All aspects of sample testing are totally automated and controlled by the Q 500 software, including pan taring, pan loading, sample weighing, furnace movement, pan unloading and furnace cooling.

Maximum productivity from the Q 500 Autosampler is achieved when paired with the intelligent Thermal Advantage Autoanalysis software, which permits pre-programmed analysis, comparison and presentation of results.

**SDT 2960 SIMULTANEOUS DSC-TGA**

Provides simultaneous measurement of transition temperature / heat flows and weight changes in materials. Simplifies interpretation, increases productivity, and assures identical experimental sampling conditions. Temperature range (ambient to 1500°C) is broadest of TA Instruments TGA products.
DMA 2980
Dynamic Mechanical Analyzer
DMA measures the mechanical properties of a material as a function of time and temperature. The DMA 2980 is the world’s #1 selling dynamic mechanical analyzer because it incorporates research-grade performance, reliability, and ease-of-use. The DMA 2980 features a unique air bearing for frictionless motion, a high resolution optical encoder to detect low strain, a powerful non-contact motor, wide temperature range (-150 to 600°C), and multiple modes of deformation (single/dual cantilever, 3-point bending, compression, tension and shear sandwich).

TMA 2940
Thermomechanical Analyzer
TMA measures dimensional changes in materials. Key features of the TMA 2940 include a wide variety of interchangeable probes accommodating solids, powders, fibers and thin films; automated furnace movement with convenient sample loading for ease-of-use; programmable force (0.001 to 1.0 Newtons); and broad temperature range (-150 to 1000°C).
**μTA 2990**  
**Micro-Thermal Analyzer**  
Micro-Thermal Analysis (μTA) combines the visualization power of atomic force microscopy (AFM) with the characterization capabilities of thermal analysis. It can be used to characterize materials and surfaces, visualizing the spatial distribution of phases, components, and contaminants. With a resolution of less than 1µm, any point (2x2µm) on the image can be selected for characterization.

**DEA 2970**  
**Dielectric Analyzer***  
DEA measures the capacitive and conductive nature of materials under a cyclic (sinusoidal) voltage. The DEA 2970 features four types of interchangeable, disposable sensors (ceramic parallel plate, ceramic thin film parallel plate, ceramic single surface and flexible remote single surface**), 5 decades of frequency multiplexing, and a wide temperature range (-150 to 500°C). The DEA can handle samples ranging from solids to liquids.

* Incorporates technology licensed to TA Instruments by Micromet Instruments, Inc., Newton Center MA  ** Product of technology licensed to TA Instruments by Micromet Instruments, Inc., Newton Center MA
RHEOLOGY
MEASUREMENT OF DEFORMATION AND FLOW IN MATERIALS UNDER FORCE

**AR 1000 RHEOMETER**

The AR 1000 is a research-grade rheometer incorporating a unique motor design and advanced material air bearing. It has excellent torque performance, very low inertia, and easily outperforms competitive research-grade systems. The AR 1000 can be equipped with multiple temperature control options, normal force sensor, and custom geometries.

**AR 2000 RHEOMETER**

The AR 2000 is our most powerful, versatile and easy-to-use, research-grade rheometer. It offers the widest range of torque and normal force, superior strain resolution, broad frequency range and several optional temperature control systems (-150 to 600°C). Unique Smart Swap™ technology permits temperature system interchange in a fraction of the time needed with competitive models. It is well equipped to handle the most demanding rheological applications.
AR 500 Rheometer

The AR 500 is a general purpose rheometer with many features of our research models. Cost-effective, reliable, and easy-to-use, it is ideal for R&D or quality control of liquids and semi-solids. The AR 500 is an upgradeable system that can grow as your applications expand. It is the ideal system for users interested in a robust, cost-effective system with outstanding basic performance.

QCR II Quality Control Rheometer

This rheometer is designed for QC applications where simple viscometer measurements provide insufficient information. The QCR II is based upon the successful AR 500, and is configured with automated test procedures (scripts) that provide "R&D quality" results in an instrument that is easy-to-use, priced to fit a QC budget, and requires little or no operator training. The QCR II is ideal for use where an analytical method developed in R & D is being transferred to a plant location.

CSA II Asphalt Rheometer

Based upon the AR 500, the CSA II is a dedicated dynamic shear rheometer designed for rapid characterization of asphalt binders in accordance with the latest US Federal Highway Administration specifications. The CSA II uses pre-programmed approved methods that allow inexperienced operators to successfully and reliably evaluate asphalt binders according to the AASHTO test procedures (TP5, PP6, and MP1). It is routinely used by many asphalt suppliers, State Departments of Transportation, and research institutes that study asphalt.
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