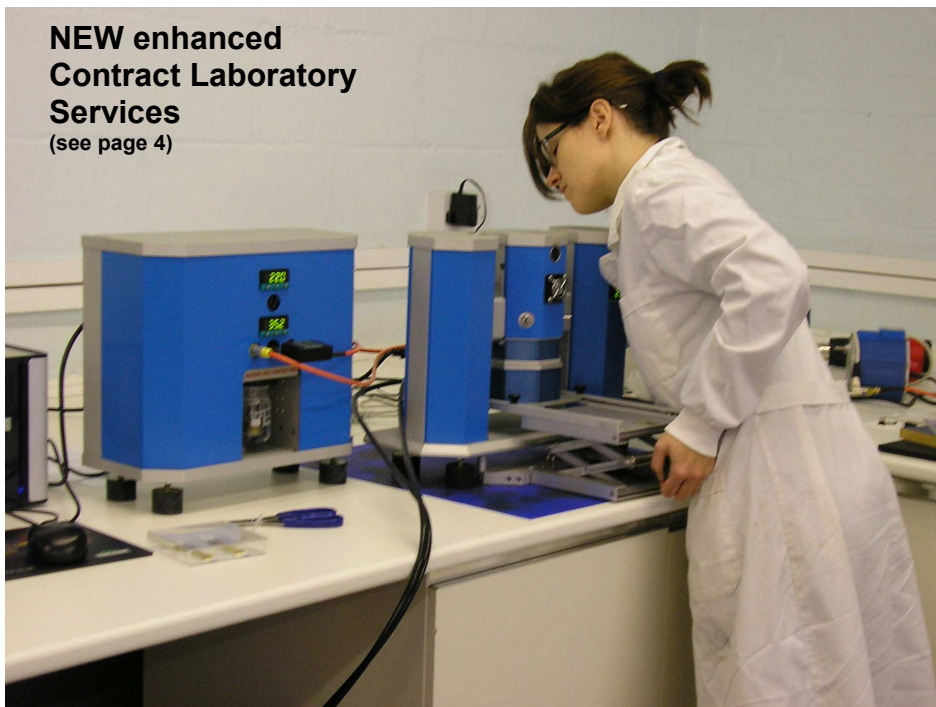


**NEW enhanced  
Contract Laboratory  
Services**  
(see page 4)



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**Superb DSC for not a lot of money.**

The DSC60 features:

- Built in LN2 cooling chamber
- -140°C to 600°C
- Temperature Accuracy  $\pm 0.1$  K
- Temperature Reproducibility  $\pm 0.1$  K
- Fast cooling (6min from 600°C to 40°C)
- Up to 100°C/min heating rate
- Calorific Accuracy  $\pm 1$  % (traceable on NIST-ICTAC standards)
- Calorific Reproducibility  $\pm 0.1$  %
- Time Constant <4seconds
- $\pm 40$  Mw measurement range
- 1 $\mu$ W rms noise (150°C isotherm)
- Air and inert gas atmospheres possible
- Cell swept volume <1cc
- Very low maintenance costs
  
- **Price – Amazingly low – see inside for current offer price\***

\* Price is for a stand alone unit with start up kit but excludes Crimper/Sealing tool, Gas Switching accessory, auto cryo devices.



## Company News

### Sale of Tritec2000 DMA to Perkin Elmer Life and Analytical Sciences

On January 2<sup>nd</sup> 2007 - PerkinElmer acquired the current DMA Technology from Triton Technology Ltd. This means that the Tritec2000 will now be built, sold and maintained by PerkinElmer Inc. Triton Technology Ltd. will continue to offer a full applications service, including DMA and will also offer enhanced characterisation services including DETA, DSC, DTA, TGA, TMA etc. This sale was a strategic move that allows Triton Technology Ltd. to rapidly bring to market exciting new technologies. It is anticipated that the first of these will appear by early 2008. This new technology will for the first time provide a sensible tool for identifying and checking the quality of thermoplastics at an affordable price. More news and information will appear nearer to launch.

It is understood that existing users may be concerned about support, existing warranties etc... Triton Technology Ltd. would wish to assure everyone that all existing warranties will be fully honoured. PerkinElmer have acquired liability for these but Triton Technology Ltd. will work closely with PerkinElmer to ensure any arising issues are dealt with. Customers are welcome to contact either their local PerkinElmer office or Triton Technology Ltd. if they require further clarification.

For additional information, statements and Press Releases, visit either the Triton Technology Ltd. or PerkinElmer web sites; [www.tritont.com](http://www.tritont.com) or <http://las.perkinelmer.com>

**It should be made clear that Triton Technology Ltd. will continue to manufacture and supply Humidity Control systems and the Dielectric THERMAL analysis range. Triton also remains the official importer into Europe for all Shimadzu Thermal Analysis equipment. These were not part of the deal with Perkin Elmer. Customers interested in these products should continue to contact Triton Technology Ltd.**

### Triton train Perkin Elmer staff

Training courses in the UK and at Perkin Elmer's Shelton facility in Connecticut have been conducted by Triton Technology Ltd. personnel.

PE thermal analysis specialists from around the world attended an extensive training programme in Shelton

A detailed explanation of the Triton technology has been passed across to key specialists within the Perkin Elmer organisation as well as extensive elaboration of the applications that this equipment can handle. These ranged across all the usual DMA characterisations to the use of the DMA coupled with Fluid Baths, Environmental Chambers, Humidity Generation and Control Equipment, use of the DMA in a TMA mode and of course characterisation of powders with the Materials Pocket.

To date, application manufacturing and service training have now all occurred. Ongoing support continues.

For those interested in purchasing the DMA equipment, please contact your local Perkin Elmer Life and Analytical Sciences office or visit their web site <http://las.perkinelmer.com>

### Triton Technology Limited launches new Web Site: [www.tritont.com](http://www.tritont.com)

The latest products and services from Triton Technology Ltd. can be found on the new web site. The existing web address [www.triton-technology.co.uk](http://www.triton-technology.co.uk) will also remain valid.

Featured on new site is the DS6000 Dielectric THERMAL analyser, 'Mini' Sputter Coater, Humidity generation and control units and our Contract Analytical Services.

The web site now offers an Enquiry Submission Form for quick and effective processing of enquiries. This can be used for any enquiry; equipment purchase, application advice, service and warranty issues etc. An email response to all enquiries will be sent within 24 hrs of receipt from the relevant person.

## NEW !!!

### TRITON DS6000 Dielectric THERMAL Analyser

The Triton DS6000 DETA is the most flexible and cost effective Dielectric THERMAL Analyser available today. Its innovative design, high functionality and flexible operation make the Triton DS6000 DETA ideal for advanced research or simple QC.



The DS6000 uses familiar architecture for those familiar with Triton Technology Ltd. products. Using highly developed ovens, cooling accessories and add on environmental controls allow researchers to extend themselves with this highly innovative product.

The Triton Dielectric **Thermal** Analyser (DETA) is a very powerful technique for probing both the molecular and rheological behaviour of materials. The material should possess at least one component that possesses a dipolar molecule. Most polymers are good examples of typical material but powders and various liquids such as oils and waxes can also be investigated with this technique.

The information obtained can help with the identification of structure and aid process optimisation and end user performance.

In particular, molecular relaxations, the cure of resin systems and calculation of activation energies.

The sensitivity is so great that it can achieve far better resolution of beta relaxations than DMA in many cases.

**Industries** that could benefit from the use of DETA include for example:-

Aerospace	Food Processing
Automotive	Plastics
Electronics	Petrochemical
Coatings	Cable

Examples of the **types** of materials that can be studied by the DETA technique are:-

Thermoplastics	Films
Thermo set resins	Paint, Paint Films and Coatings
Rubbers	Adhesives
Food products	Oils, Waxes and Greases
Composites	Greases

Molecular relaxations can be easily detected in polymeric materials as long as the material possesses at least one species present that has a dipole. Polymers without an obvious dipole such as polyolefin's, e.g. polyethylene, will not in themselves exhibit any dielectric response however, in many instances; impurities present will allow investigation even in these cases. Some examples of typical data is shown on Page 3

Examples of typical simple characterisations are illustrated in Figures 1 and 2

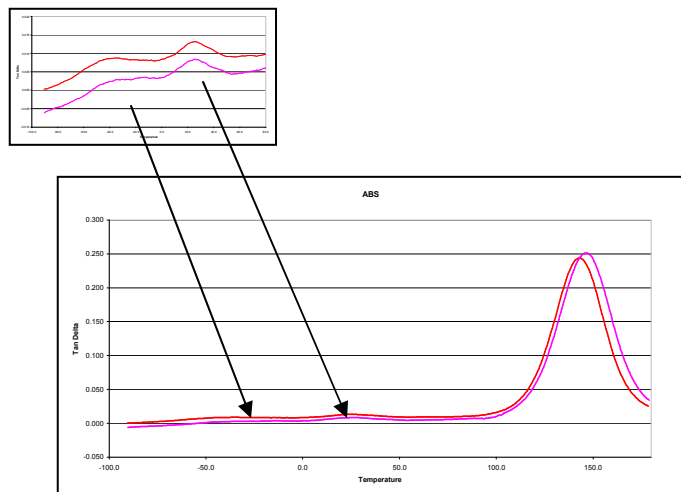


Figure 1

The example shown in Figure 1 is a dielectric **thermal** characterisation of an ABS material. The polystyrene acrylonitrile component produces a very strong response and the butadiene added is clearly a minor component of the blend. Note the frequency dependence of the relaxations, both for the polystyrene acrylonitrile and the butadiene component. There is, in this particular material, a minor component that is not frequency dependant from 0°C to around room temperature. This may be a trace of moisture in the sample. The sample was 3.85mm thick and a 33mm disc was analysed. The heating rate was 2°C/min. Note that it took 5 minutes to cool from ambient to -100°C with the Triton 1 litre manual mini cryo system.

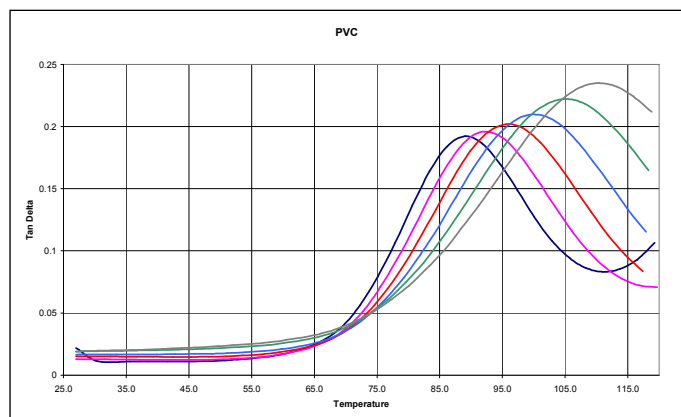


Figure 2

Figure 2 is a typical thermal scan of PVC film in the dielectric **thermal** analyser. Typically, a thin sheet material such as this is sputter coated with a conductive metal such as silver or gold prior to mounting in the instrument. This eliminates errors due to lack of contact with the sample surface and will produce excellent characterisations. The sputter coating process typically takes less than 5 minutes.

The above sample was 0.35mm thick sheet and a 33mm diameter sample was placed between the electrodes. The ramp rate was 3°C/minute.

These examples illustrate how the dielectric thermal analyser offers a highly complimentary approach when examining thin film and sheet materials in particular. Examples of other material forms such as powders, liquids etc are available on request.

## Triton Humidity Generator and Controller

The **Humidity Generator and Controller** is a unique and flexible solution to deliver an accurate relative humidity useful for multiple applications.

Gas is pumped through a desiccant built into the instrument. A valve, controlled by a humidity sensor placed at the sample site, is used to divert some gas flow through water reservoir before being pumped through to the sample. This feedback function ensures that the humidity selected is the real humidity at the sample site.



### Features

- Includes NEW!! Triton Laboratory © software
- Easy tie in with other equipment
- Unique “sample site” humidity feedback control
- Easy portability with compact design
- Heated transfer line to avoid condensation

### Specifications

**Humidity Range:** 5% to 90% (25°C)  
10% to 80% (80°C)

**Temperature Range:** 5°C to 85°C

Note: Care must be taken regarding dew points for low temperature studies

**Max. sample chamber volume:** 200 cc (Approx)

## Special Offers on Shimadzu Thermal Analysers

For a limited period, Triton Technology Ltd. has special offers on DSC60 and DTG60 Shimadzu Thermal Analyser systems.

The **DSC60** can now be purchased in the UK from just **£7,500** excluding VAT. This will include a start up kit with single channel software, tweezers and a supply of aluminium pans. A range of optional accessories are available including crimping/sealing tool, gas switching boxes, autocryo systems etc. Included in this deal is FREE installation and training.



The **DTG60** is a TGA with a simultaneous DTA signal. This means that calibration of temperature can be easily done with conventional standard materials such as indium etc. rather than unreliable and expensive paramagnetic standards. Surprisingly, the cost of this simultaneous TGA/DTA analyser is no more than a TGA system only.

The DTG60 M (ambient to 1100°C) is currently on special offer at £14,500 excluding VAT. This includes TA60WS multi-channel interface, software and start-up kit.

As with the DSC60 deal, FREE installation and training are included for a limited period.



Other model configurations of both DSC60 and DTG60 offer auto samplers. The DTG60 is also available with a temperature range extended to 1500°C.

To complete the TA range, the Shimadzu TMA60 Provides users of TMA with an excellent static/dynamic load TMA with capabilities up to 5N loading and a displacement capability of ±5mm. Standard unit has a temperature range ambient to 1000°C with options of -150°C to 600°C or ambient to 1500°C. Prices start from just £18,500 excluding VAT.



## Short Courses

Triton Technology Ltd. now offer a range of short courses tailed to your particular organisations needs. These can be conducted either at your own site or at Triton Technology Ltd.'s facility in Keyworth, Notts.

Example courses are;

### **Polymers for beginners**

This assumes no previous knowledge and is designed for staff involved in a polymer or elastomer industrial environment that requires a grounding in the basics of polymer science. This is a one day course.

Recommended number of people is between 5 and 10.

### **Characterisation of materials using Thermal Analytical techniques.**

This is an advanced course providing in depth introduction and hands on experience with techniques such as DMA, DSC, DETA, TGA etc. Covers theory of the techniques involved, hands on operation and interpretation of the data produced. This course assumes some basic knowledge.

The course is designed for one to three people only and lasts 3 days.

### **Effective use of Dynamic Mechanical Analysers.**

A two day hands on course providing in depth training for both new and existing users. Understanding stiffness range of the equipment, choosing optimum geometries, understanding clamping errors, obtaining good modulus data etc., etc. are all covered in this course.

Maximum No per course is three people.

### **Basics of Thermal Analysis**

How do they work? Which technique provides what information? How do I choose the correct technique?

A one day taster.

Can be run as a one to one course or up to 20 people.

### **How to choose and buy the correct Thermal Analyser.**

Understanding specifications. What equipment offers features useful to you? What features might you need in future? Upgrade ability?

Running costs. Repair costs.

Let the experts help you choose or

**Why not let us handle the whole process?** We can provide an evaluation of your needs, interface with the instrument suppliers, negotiate the best deal and ensure correct commissioning on site.

Triton Technology Ltd. has networked with all the major suppliers but remains fully independent. Key personnel at Triton Technology Ltd. have in excess of 100 man years experience in this sector.

We will not take commissions from any company.

We will not act where we can offer suitable equipment directly.



2006 Triton Seminar

### **Want to know more?**

We would be delighted to discuss your potential requirements, with no obligation from you. Please contact our friendly lab and find out if we can help.



## Analytical and Consultancy Services

Technology Ltd offers a range of contract analysis services at our well-equipped laboratory in central England. Our specialists can perform specific analysis required by clients or, based on many years of experience, suggest techniques and methods that would yield the most pertinent and useful information for particular materials and applications.

### **What materials can we analyse?**

Our laboratory has experience with a wide range of materials, including: synthetic and natural polymers, composites, adhesives, membranes, thin films and coatings, food, pharmaceuticals, textiles, fibres, powders, gels, etc. Call us to see if we can help with your particular needs.

### **What can you expect from our service?**

Certainly, our equipment provides high-quality data for materials under test, but this is supplemented by the renowned expertise of our knowledgeable staff. Our experts can often enhance the value of the analysis service by assisting in the design of suitable experiments and by providing expert interpretation of the results. A full report is always provided with out data.

### **Specialist Techniques**

#### **Dynamic Mechanical Analysis (DMA)**

- Determination of the temperature and frequency dependence of the storage modulus ( $E'$ ,  $G'$ ), the loss modulus ( $E''$ ,  $G''$ ) and the mechanical loss factor ( $\tan\delta$ );
- Determination of the dynamic glass transition,
- Secondary relaxation processes and melting point;
- Mechanical characterization with controlled environment (humidity, immersion in liquids, gases, etc)
- Characterization of physical and chemical ageing processes, curing, crystallization;
- Temperature range -190°C to 600°C

#### **Thermal Mechanical Analysis (TMA)**

- Determination of the coefficient thermal expansion
- Analysis of internal stresses

#### **Dielectric THERMAL Analysis (DETA)**

- Characterisation of polymer films
- Determination of Tg of delicate films and membranes
- Determination of the temperature and frequency dependence
- Measurements of capacitance and conductivity
- Dielectric properties with controlled humidity
- Temperature range -190°C to 300°C

#### **Differential Scanning Calorimetry (DSC)**

- Measurement of Glass Transitions, melting and boiling points
- Crystallisation time and temperature and percent of crystalline
- Heats of Fusion and Reactions
- Specific Heat and Heat Capacity
- Rate and Degree of Cure
- Reaction Kinetics

Over a wide range of temperatures and with different purge gases

#### **Differential Thermo Gravimetric (DTG)**

This instrument gives simultaneous differential thermal analysis and thermo gravimetric data. It can measure:

- Changes in weight in relation to changes in temperature;
- Degradation and decomposition temperatures,
- absorbed moisture content /solvent residues
- level of inorganic and organic components

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