NEXTA® STA

Visibly better

Part of our range
of thermal analyzers

HITACHI

Reliable, accurate and ultra-sensitive

Products developed today have to meet high performance standards and withstand tough environmental conditions. Thermal analysis plays a key role in developing and manufacturing products that meet those demands. Right from the point of developing new materials within R&D, to ensuring product quality control, and even troubleshooting when components don't perform as expected, techniques such as TG and DSC give you invaluable insight into material performance.

Hitachi's NEXTA® STA instruments make it easy to analyse the thermal behaviour of materials, whether in development or in the production stage. With an unsurpassed level of baseline stability and world-class sensitivity, the NEXTA® STA simultaneous thermal analyser allows you to detect minute weight changes over a wide temperature range, ensuring the material meets the performance and quality standards required.

Delivering most advanced TGA and DSC applications within a single instrument, including decomposition temperature, phase transition in metals, melting point determination and specific heat capacity testing up to 1500°C, the NEXTA® STA range includes automation features and advanced software for ease of use. These features, coupled with a reliable, rugged design, means that the NEXTA® STA slots easily into your polymer, pharmaceutical, food, electronics, ceramics and metals materials development and quality control.

Everything you need in a single instrument

Results you can trust
Innovative furnace and balance design deliver ultimate accuracy and precision, even when measuring trace amounts of material.

Superior baseline stability
TGA baseline drift and stability of less than 10 µg, allowing you to pick up minute weight loss or gain, even for the smallest sample.

Advanced analysis
The unique Real View® system, up to 4 mass flow controllers and modulated DSC capability from room temperature to 1500°C ensures the NEXTA® STA meets the most advanced applications.

Easy to use
Built-in guidance mode and automated analysis features walk you through the essential measurement steps, ensuring even inexperienced users get the best results.

No hidden costs
The NEXTA® STA comes complete with all available software modules, meaning you can expand your use of the instrument without incurring extra software costs.

Simple reporting
Data analysis, record keeping, troubleshooting and reporting are all made easy with the NEXTA® STA's easy report creation. This both saves you time and allows you to easily share clear results that are ready to use.

Proven expertise
For over 60 years, Hitachi High-Tech has pioneered the use of high-performance and reliable analyzers for volume production use and has developed a full range of analytical instruments.

A NEXTA® STA for every application

There are three core models within the NEXTA® STA range, and each one comes with options, such as a Real View® camera system and auto-sampler, that help optimize performance for your application.

Model	STA200	STA200RV	STA300
Balance type	Horizontal Differential Balance		
Temperature range	Ambient to 1,100°C	Ambient to 1,000°C	Ambient to 1,500°C
Real View® camera	Real View® optional	Real View® ready	Real View optional
TG baseline drift	<10 µg		
TG baseline stability	<10 µg		
DSC function	Included as standard		
Specific heat capacity	Included as standard		
Temperature precision	+/- 0.07°C		
Temperature accuracy	+/- 0.2°C		
Gas control	Standard: 2 Integrated mass flow controller. Option: 4 mass flow controller		
Helium mass flow controller	Optional		

Available options

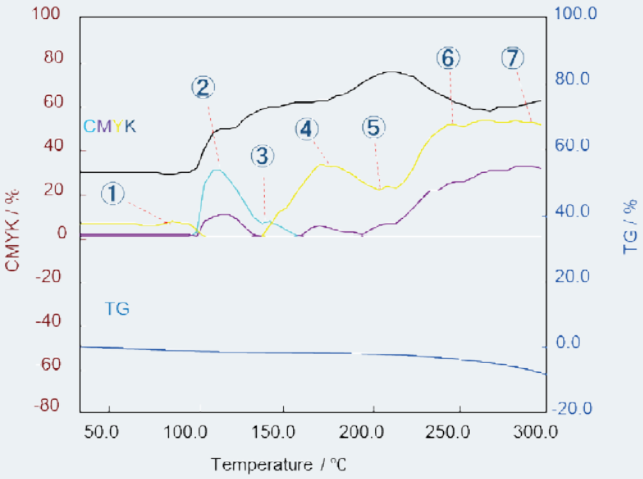
Real View® System

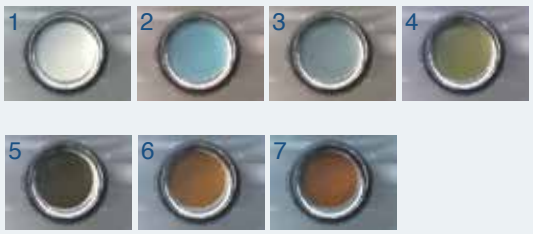
Our innovative Real View® camera system allows you to see the changes in your sample in real time. The images collected are linked to precise temperature and time measurement data which are saved so you can review at any time. Using the NEXTA® TA software, you can quantify the colours using LAB, CMYK and RGB standards. Seeing what happens to your sample in real time is invaluable when researching new materials, troubleshooting or understanding unexpected behavior.

Auto-sampler

The auto-sampler option allows for automatic analysis of several samples at once. This is especially useful in high-throughput situations and means the operator can work on other activities while analysis is taking place. The four-finger autosampler design allows the instrument to deftly handle your samples, moving them into position quickly and reliably.

Fully integrated Real View® analysis



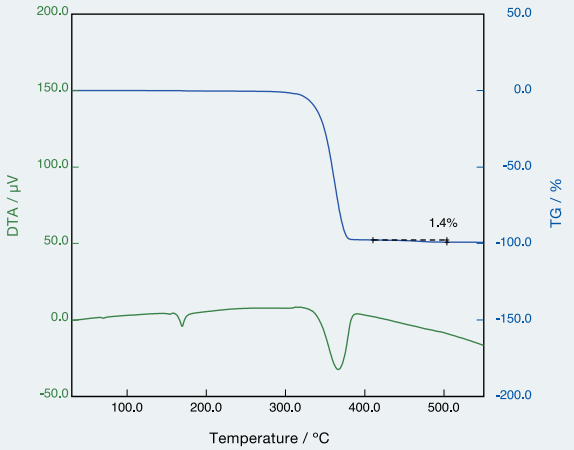


NEXTA® STA: world-class performance in action

Baseline drift and stability of less than 10 µg

Several technological developments contribute tothe NEXTA® STA's unsurpassed baseline flatness. Firstly, the horizontal design of the balance makes it less susceptible to 'buoyancy' effects which are often observed in vertical designs. Secondly, built-in thermogravimetry (TG) correction technology monitors changes in the reference sample and subtracts them from the sample readings to cancel out any drift due to expansion under high temperature. The balance unit is also held at a constant temperature to reduce environmental effects as much as possible.

Quantification of trace amounts of foreign matter in plastics

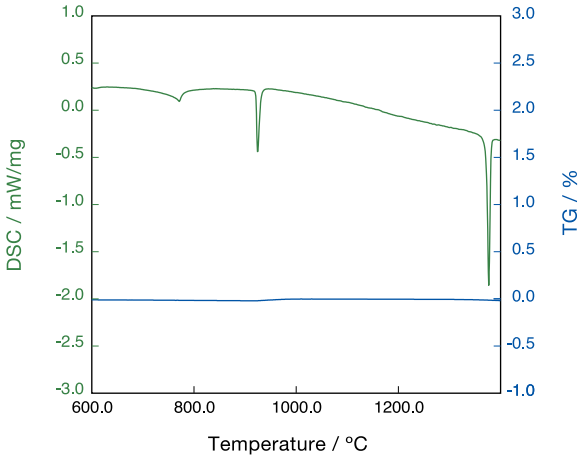


TGA to quantify trace amounts (~1%) of contaminants in plastic

Rapid purge and option for multiple purge gases in a single experiment

The entire purge gas flow system has been optimized. Up to four mass flow controllers can be chosen for running experiments using multiple purge gases. The system allows for rapid purging of residual gases, such as oxygen, to speed up the measurement process and improve performance where eliminating atmospheric gases is essential.

Measurement of metals under an inert atmosphere

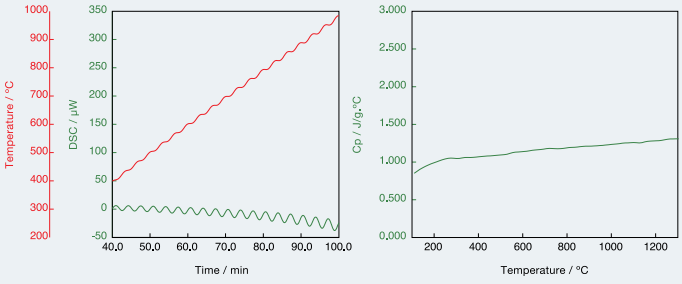


Rapid purge enables accurate thermal behavior analysis of metals under oxygen-free atmosphere

Advanced temperature control

The NEXTA® STA has a wide temperature range and will give high accuracy DSC, heat capacity and modulated DSC measurements up to 1500C. The analyzer also has functionality for isothermal and controlled high resolution TGA. This is where you can slow down the rate of temperature change in the region of interest to get better resolution and accelerate the temperature change outside this region for speed.

DSC Differential Scanning Calorimeter



Modulated temperature control | Cp conversion

Accurate determination of specific heat capacity over a wide temperature range

Powerful technology made easy-to-use with NEXTA® TA software

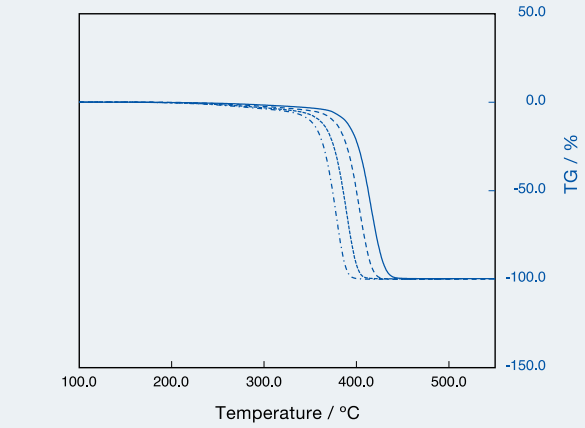
We've developed the NEXTA® TA software to accommodate different user levels. A guidance function will walk non-experts through a measurement aligned with standard test method (such as JIS, ISO, ASTM), or your own customized test methods which can be easily programmed into the software. Take routine measurements at speed by setting up common measurement conditions in advance that users can quickly select for analysis.

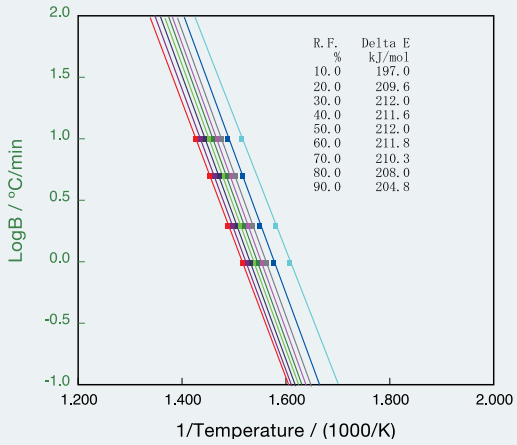
However, the NEXTA® STA can be used for more advanced analysis too. This is useful for troubleshooting in production and evaluating the behavior of novel materials before they go into manufacturing.

An example of this is Reaction Kinetics Analysis. This is an advanced analysis technique that calculates the activation energy and isothermal degradation time using data from different heating rates.

Another example is our patented 'heating rate conversion function'. It allows you to simulate data with different heating rate from actual measured heating rate. For example, if you are measuring a sample with 10°C/min and the resolution is not good enough, you can then convert the result to 0.1°C/min in an instant. This saves time for measurement as you do not need to carry out the test again or do it at these very slow heating rates but can still obtain a better resolution.

Output from Reaction Kinetics Analysis





This information is used to predict the time for decomposition for a sample at a given temperature and is useful to determine efficient and complete production processing without having to trial a huge number of different temperatures.

Visibly better thermal analysis

See the full range at: hhtas.net/thermalanalysis

▶ **NEXTA DSC Series**

▶ **NEXTA STA Series**

▶ **TMA 7000 Series**

▶ **NEXTA DMA200**

Our services

Hitachi High-Tech's global network of service hubs offers a full range of technical support to keep you up and running.

- **Repair Service**
  We offer a fast and efficient repair service, recertification and maintenance through our service agreements to ensure your analyzer is maintained in excellent condition and avoids any unplanned costs.
- **Global Help Desks**
  Whenever you have a problem, we're ready to help.
- **Extended Warranties**
  To give you extra peace of mind and avoid unplanned costs.
- **Online Support**
  In-depth and rapid support via our web application.
- **Training**
  To help you get the most out of your analyzer and its full range of features.

Other products

We have been providing materials characterization instruments to a wide range of industries for over 60 years.

Thermal Analysis
We offer a range of other thermal analysis instruments including DSC, DMA and TMA. All of which work on the NEXTA® TA software platform allowing continuity across your analysis without extra training.

Bulk XRF
for rapid and powerful elemental analysis for a wide range of applications.

Microspot coatings XRF
for precise analysis of the smallest samples and features.

What next?

Contact one of our experts today at:
contact@hitachi-hightech.com

to discuss which analyzer within the NEXTA® STA range best suits your production or research application.

Browse our full range of products online at
www.hitachi-hightech.com/hha

More information

To find out more about the NEXTA® STA range, visit **hhtas.net/NEXTA-STA**

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