setline

simple. powerful

by SETARAM

STA / STA+

Setline® by Setaram

Setaram has inspired material scientists for over 70 years with a range of high quality material characterization instruments for even the most challenging experimental conditions. Now Setline brings Setaram's thermal analysis expertise to academia with a range of instruments designed to meet the most important educational needs and applications ranging from the acquisition of thermal analysis skills through to basic research.

SIMPLE

Setline® is easy to use and easy to own

EASY TO USE

- Setline® is easy to use across diverse academic fields
- Setline's® compact design is robust and space efficient for all laboratories
- Options focussed around core needs ensures ease of use and quicker mastery
- Setline's® robot (STA^{+}) automates sample handling across multiple experiments

EASY TO OWN

- Setline® is buil
- Cost of ownership is lowered thro maintenance and a Replacement Parts Guarantee*
- Setline s® echnical and Application support ensures fast, expert help on any question

*See local guidelines for details

Thermal Analysis and Academia

Thermal analysis has applications in many academic fields including but not limited to Material Science, Metallurgy, Polymer and Physical Chemistry, Chemical Energy, Engineering, Geoscience, Pharmacy and Food Science. This diversity highlights the variety of institutes and students who use thermal analysis instruments and often on a continual basis. The early popularity of Setline DSC / DSC^{+} systems sees the range now extend into STA / STA^{+} systems. STA, or Simultaneous Thermal Analysis enables the coupling of Thermo Gravimetric Analysis (TGA) and Differential Scanning Calorimetry (DSC) for simultaneous measurement of mass variations and heat flow.

With educational needs in mind, Setline® thermal analysis instruments are designed for **simplicity** and **power**.

"Calisto software is intuitive and user friendly, and the more complex features can be learned fast.

The capability to import and treat data from other manufacture analysis instrument or custom-built equipment makes the software extremely valuable for research labs."

Dr Kristina Lilova
PhD in Materials Science
/Solid State Chemistry
UC Davis, USA

Setline® by Setaram STA and STA^{+}

POWERFUL

Calisto is designed to treat any Thermal Analysis data from any instrument or brand, works on any Setline or Setaram instrument and consists of two independent parts:

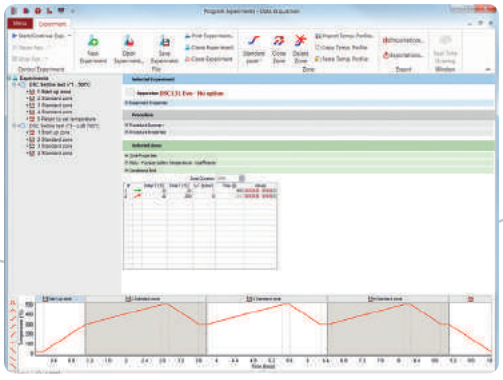
- **CALISTO ACQUISITION** is dedicated to the control and data acquisition of **SETLINE® STA/STA^{+}** It includes the intuitive set-up of experiment procedures for all conditions and parameters.

- **CALISTO PROCESSING** is designed for **SETLINE® STA/STA^{+}** data treatment and includes:
  - Powerful thermal effect processing (single and multiple mass changes, residual mass, DTG, blank subtraction, DSC peak integration, etc)
  - Options to present data with the maximum impact
  - Direct export to graphical or spreadsheet formats

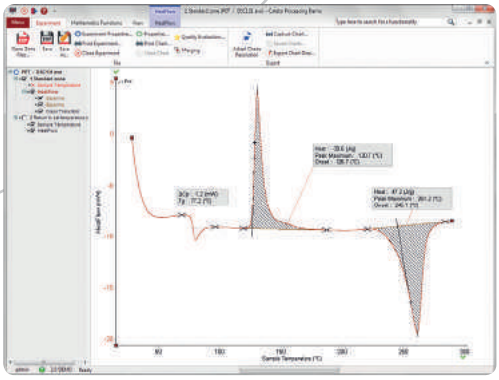
See calisto-software.com for more information on the power of Calisto 2.0 software.

Calisto 2.0 Exclusive Software

With quick to install Calisto software Setline's® STA and STA^{+} are not only **Simple**, they are **Powerful** too.



CALISTO DATA ACQUISITION



CALISTO DATA PROCESSING

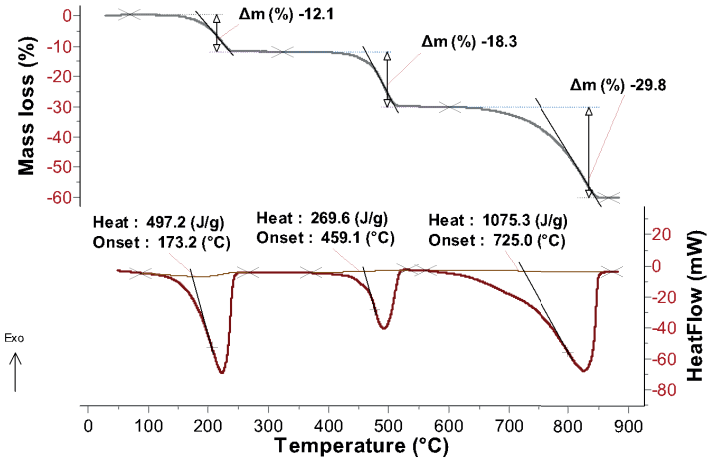
Applications

The combination of **simplicity** and **power** of SETLINE® STA and STA^{+} make them the ideal instruments for a first experience in thermal analysis. With Education in mind, they were designed for the most common applications in industry and research, so offer the best preparation for students' future activities.

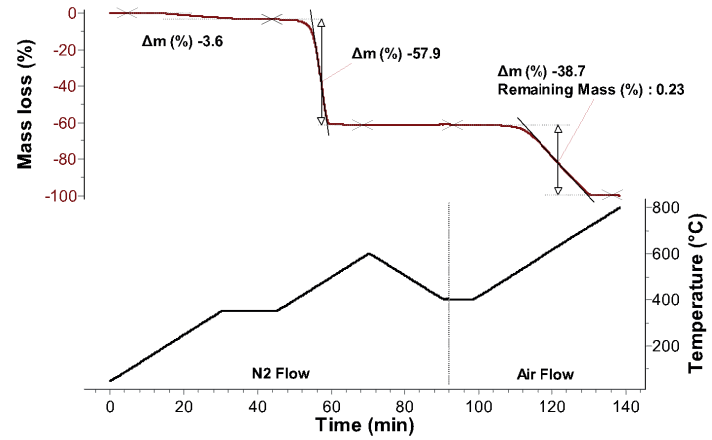
With SETLINE® STA and STA^{+} the main available measurements include:

- Thermal stability, ageing and decomposition pathway of most materials:
  - Polymers, elastomers, pharmaceuticals, biomaterials, organic substances like coal, oils, lubricants
- Study of thermal effects like:
  - Pyrolysis, combustion
  - Desorption
  - Dehydration, dehydroxylation
- Compositional analysis:
  - Ashes, carbon, fillers, additives' contents
  - Moisture, solvent contents

Just two of many common data representations using Calisto 2.0 software:



Mass loss (TG) and Heatf ow (DSC) traces of a calcium oxalate monohydrate (CaC2O4, H2O) sample. From lower to higher temperatures: dehydration, formation calcium carbonate and formation of calcium oxide. This rather simple example highlights the quantitative aspect of thermogravimetry measurements. This demonstrates to students the capacity of the STA method both to identify steps in the thermal decomposition of materials, and to detect endo or exothermic effects.



Analysis of the composition of a synthetic rubber. The sample is heated in two steps up to 600°C under inert gas flow (nitrogen) and cooled down to 400°C. The gas ow is changed to air and the sample is heated up to 800°C. The three mass losses observed correspond to the decomposition of the plasticizer, oil and wax content (3.6%), the elastomer content (57.9%) and the carbon black content (38.7%). The remaining mass at the end of the experiment corresponds to the ash content of the rubber, but is insignificant (<0.5%) in the present example.

For more information, a free STA Basics and Practical Exercise workbook and extensive application library please refer to:

www.setaramsolutions.com

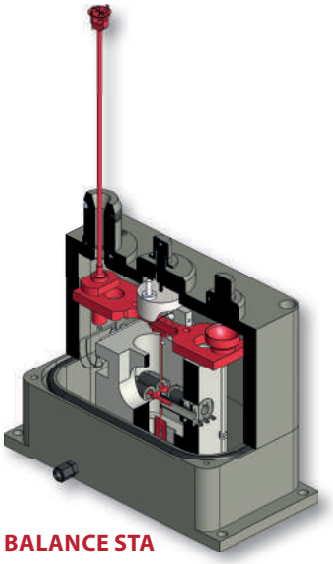
Features

DSC SENSOR

The DSC transducer of the Setline® STA / STA+ is made from platinum alloys and uses plate-shaped DSC rod technology ensuring high sensitivity over the full temperature range (room temperature to **1 100 °C**).

BALANCE

The balance used to measure sample mass variations is based on the proven technique of a beam articulated around a torsion band, the most appropriate design for a stable and robust system. It guarantees reliable and sensitive measurements.



BALANCE STA

CRUCIBLES

We provide finest quality aluminium, alumina and platinum crucibles (80, 90 and 100µl respectively).

Specifications

	SETLINE® STA	SETLINE® STA^{+}
Temperature range (°C)	RT* to 1 100	
Programmable heating rate (°C/min)	0.01 to 50	
Cooling time	45 min from 1 100 °C to 70 °C (air)	
Atmosphere	Inert (N_2, Ar, He…) or oxidative (Air, O_2…)	
Gas flow range (ml/min)	10 to 100	
Mass variation range (mg)	+/- 200	+/- 1 000
Mass variation resolution (µg)	0.05	0.5
DSC rod resolution (µW)	2.5	
Autosampler	-	49 positions (samples or references)
Maximum dimensions Height - Width - Depth (mm) / (in)	600 (closed) or 800 (open) - 400 - 500 / 23.6 (closed) or 31.5 (open) - 15.7 - 19.7	800 - 500 - 650 / 31.5 - 19.7 - 25.6
Power requirements	230V - 50/60Hz	

***Room Temperature**

Setline® by Setaram. Unusually Simple. Surprisingly Powerful.

setline by SETARAM
simple. powerful

Switzerland – France – China – United States – India – Hong Kong

For contact details: **www.setaramsolutions.com or setaram@kep-technologies.com**

KEP Technologies
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