Simultaneous Thermogravimetric Analyzer / Differential Thermal Analyzer (TGA/DTA)

The simultaneous thermal analyzer can characterize multiple thermal properties of a sample in a single experiment. The TG component measures temperature where decomposition, reduction, or oxidation occurs. It simultaneously measures the weight changes associated with decomposition, oxidation and other physical or chemical changes that result in sample weight loss or gain.

DTA component shows whether the decomposition process is endothermic or exothermic. DTA measures temperature corresponding to phase changes where no mass changes occur, such as melting, crystallization, and glass transitions.

Technical Specifications

Model	STA300
Balance type	Horizontal Differential Balance
Temperature range	Room temperature to 1,500°C
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 controllers. Option: 4 mass flow controllers
Atmosphere	Inert – Argon, Nitrogen
Sample	0.1 – 180 mg
Heating Rate	0.01 to 100.00°C/minute

Applications

- Thermal stability studies, Monitoring mass changes of materials under controlled gas atmosphere and temperature: volatiles, reactive gas evaluation, filler content, compositional analysis, material identification
- Phase transitions of metals and alloys, Qualitative analysis of phase transitions: melting, Tg, crystallization
- Determining the effect of oxidative or reductive atmospheres on materials
- Analysis of polymers, organic and inorganic materials
- TGA/DTA System can be used for such applications as oxidation, heat resistance, amount of water, compositional analysis, and measurement of ash contents in a sample. This system is also used to cover such needs as reaction rate and accelerated degrading tests.

Strengths

- Rapid screening of thermal properties of materials
- Simultaneous acquisition of thermogravimetry and phase transition data
- Small sample size
- Choice of atmospheres (inert or reactive)
- Used for high-temperature analysis of phase transitions

Sample Requirements

Amount- ~10-20 mg (in fine powder form).

Note: No liquid, toxic & contagious samples are allowed for analysis.

Details of TGA/DTA

Brand	**HITACHI**
Model	STA300
Sponsored Agency	DST- PURSE program (Phase -2)