A close-up photograph of a blue metal plate with several white pins or sensors attached to it. The plate has a curved edge and several circular holes. The background is a blurred blue surface.

STA PT 1600
TGA PT1600
DTA PT1600

LINSEIS

Introduction

The LINSEIS STA PT1600 Platinum Series (simultaneous thermal analysis) can be used to determine simultaneous changes of mass (TG) and caloric reactions (HDSC) of a sample in the temperature range -150° up to 2400°C . The unique characteristics of this product are the ability to perform tests from ultra high vacuum 10E^{-4} mbar to 5 bar overpressure. The Instrument was especially developed to meet the challenging demands of the high temperature as well as low temperature applications. To cover this broad range several specifically designed furnace types are available. Furthermore MS (mass-spectrometer) and FTIR spectrometer couplings can be added to receive unique additional information. Due to its superior performance, user friendliness and modularity, the STA Platinum Series is an indispensable tool for every thermo analytical user.

The LINSEIS TGA PT1600 is a thermobalance with which the mass of the sample is monitored against time or temperature while the temperature of the sample, in a specified atmosphere, is programmed.

This technique serves the determination of material compositions. It is a common analysis method in the chemical and pharmaceutical industry. Thermogravimetric analysis (TGA) is performed on rubber, plastic, and ceramics as well as many other materials.

The LINSEIS DTA PT 1600 uses a DTA Sensor for detecting calorimetric signals instead of the DSC Sensor used in the STA PT 1600.

From the combination of TG and DTA or HDSC one receives a broad range of information, such as:

TG:

- Mass change
- Absolute sample temperature
- Temperature difference (sample / reference)

HDSC:

- Enthalpy, melting energy
- Specific heat
- Glass point
- Crystallinity
- Reaction enthalpy
- Thermal stability
- Oxidation stability
- Aging
- Purity
- Phase transformation
- Solidus / Liquidus - relationship
- Eutecticum
- Polymorphism
- Product identification



STA PT1600 Hi Res

Software

All LINSEIS thermo analytical instruments are PC controlled. The individual software modules exclusively run under Microsoft® Windows® operating systems. The complete software consists of 3 modules: temperature control, data acquisition and data evaluation. The 32 bit software incorporates all essential features for measurement preparation, execution, and evaluation of a Thermogravimetric measurement. Thanks to our specialists and application experts, LINSEIS was able to develop comprehensive easy to understand user friendly application software.

Features-Software:

- Program capable of text editing
- Data security in case of power failure
- Thermocouple break protection
- Repetition measurements with minimum parameter input
- Evaluation of current measurement
- Curve comparison up to 32 curves
- Storage and export of evaluations
- Export and import of data ASCII
- Data export to MS Excel
- Multi-methods analysis (DSC TG, TMA, DIL, etc.)

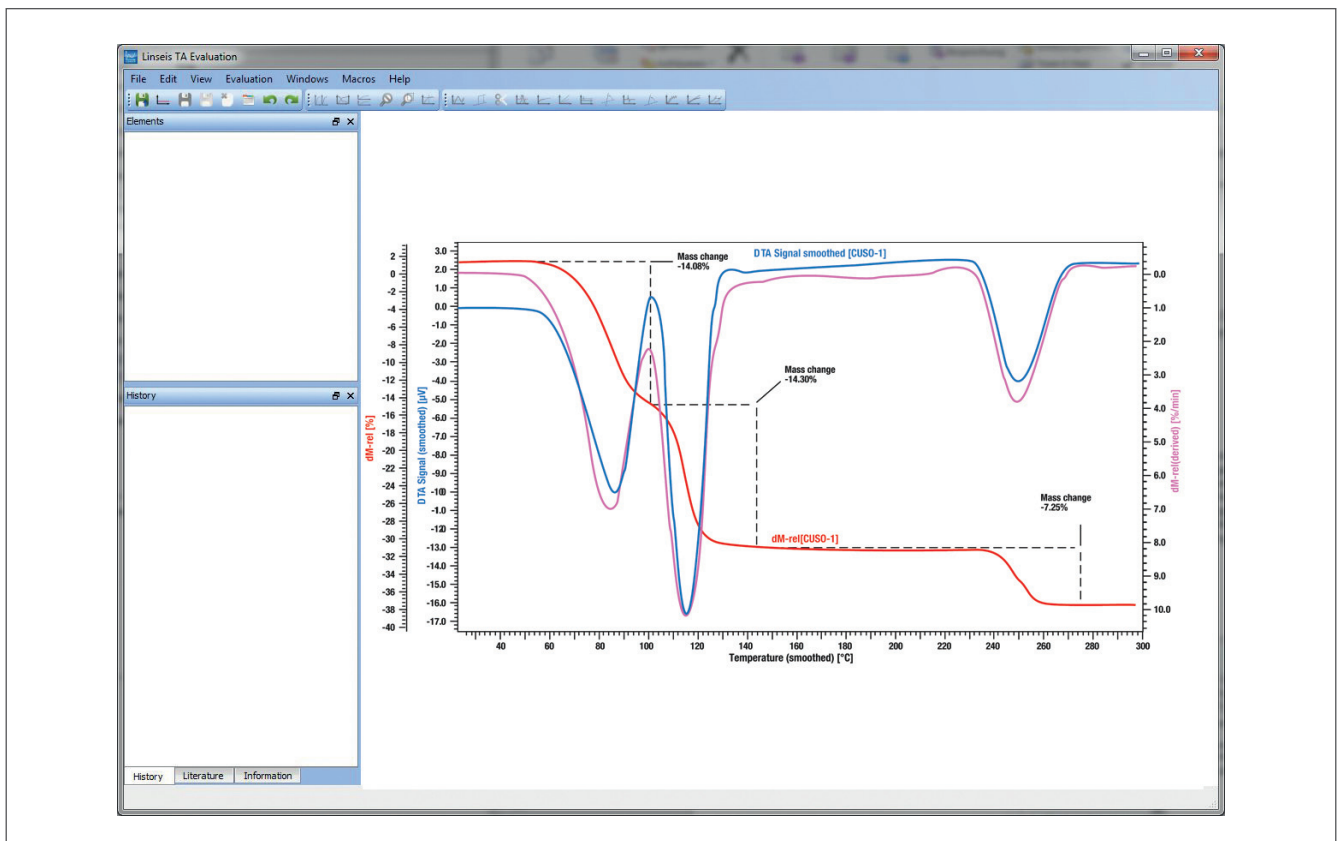
- Zoom function
- 1 and 2 derivation
- Programmable gas control
- Statistical evaluation package
- Free scaling
- Optional Kinetic and Lifetime Prediction Software packages

TG – Features:

- Mass change as % and mg
- Rate Controlled Mass Loss
- Evaluation of mass loss
- Residue mass evaluation

HDSC – Features:

- Glass transition temperature
- Curve subtraction
- Complex peak evaluation
- Multipoint calibration for sample temperature
- Multipoint calibration for change of enthalpy
- Cp calibration for heat flow
- Signal-steered measuring procedures



Unique Features

Measurement system

All TG, TG-DTA and TG-DSC measurement systems are easily exchangeable to ensure user-friendly and quick system handling. A broad range of crucibles 3,0ml TG, 0,3ml DTA and 0,12ml DSC made of Platinum, Gold, Al_2O_3 , Alumina, Tungsten or Graphite are available.

Vacuum and controlled atmosphere

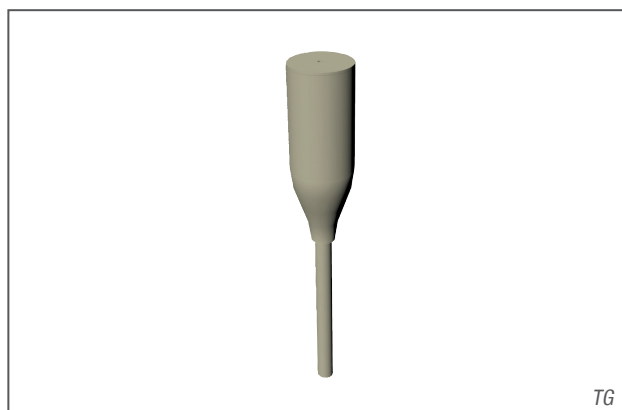
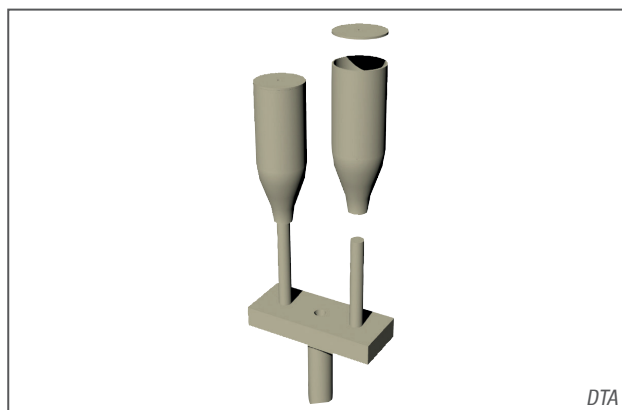
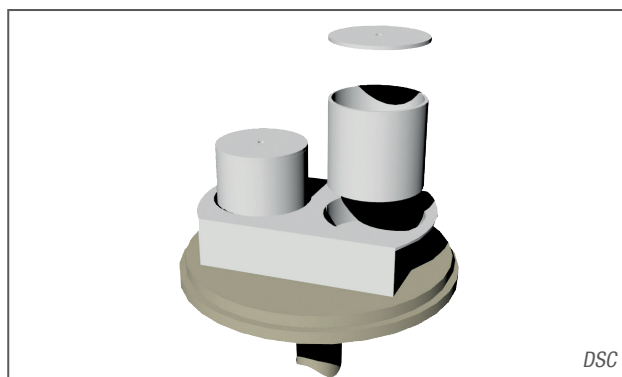
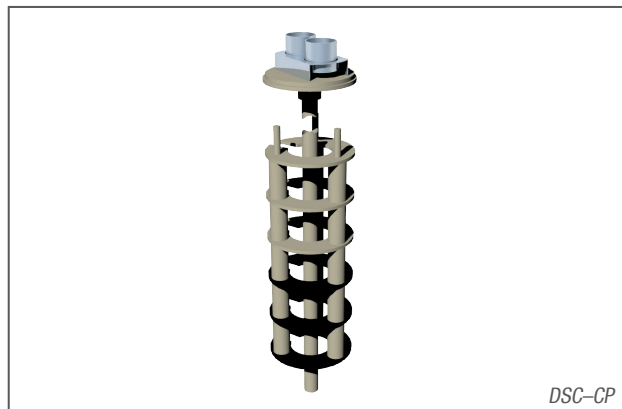
The balance design provide for high vacuum, inert, reducing, flowing or humidified atmosphere. Furthermore the instrument can be pressurized up to 5 bar overpressure. Certain corrosive conditions can be analyzed with proper precautions. The system is capable of adapting residual gas analysis systems using an optional heated capillary.

Furnace program

The exchangeable furnace program for pressurized and non pressurized applications covers a broad temperature range from -150° up to 2400°C . Stable and reproducible baselines are achieved due to the specially designed heating elements and system setup. elements and system setup.

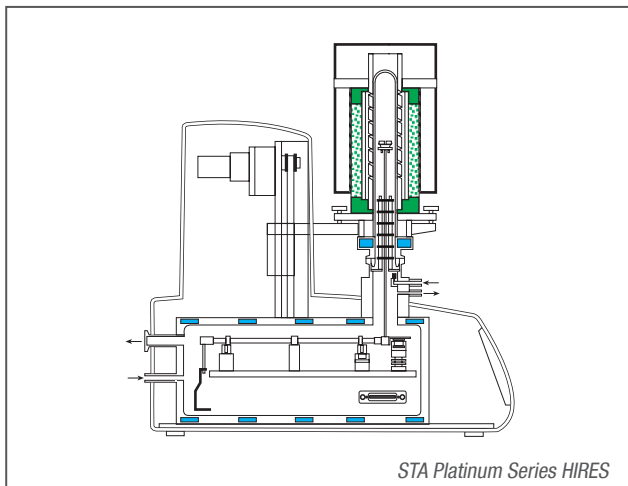
Vacuum, Vapor and Controlled Atmosphere

The balance design provide for high vacuum , inert, reducing, flowing or humidified atmosphere. Corrosive conditions can be analyzed with proper precautions. A unique Gas control for high pressure applications is available to ensure smooth gas flow switching under pressure conditions without affecting the TG signal. Furthermore a sophisticated vapor generator can be supplied with the equipment.



Furnace Programm

Technical Data



Furnace Programm

Temperature	Type	Element	Atmosphere	TC-Type
-150 – -500°C	L81/264	Kanthal	inert, oxid., red., vac.	K
-150 – 1000°C	L81/264ER	Kanthal	inert, oxid., red., vac.	K
RT – 1000°C	L81/220	Kanthal	inert, oxid., red., vac.	K
RT – 1400°C	L81/IR	IR Heater	inert, oxid., red., vac.	S
RT – 1600°C	L81/240	SiC	inert, oxid., red., vac.	S
RT – 1650°C	L81/240Rh	Precious Metal	inert, oxid., red., vac.	B
RT – 1750°C	L81/250	MoSi ₂	inert, oxid., red., vac.	B
RT – 2000°C	L81/300	Graphite	inert, oxid., red., vac.	B
RT – 2400°C	L81/320	Graphite	inert, oxid., red., vac.	B

Technical Data

General	
Temperature range	-150 up to 2400°C
Vacuum	10E ⁻⁵ mbar (with TMP option)
Pressure	up to 5 bar (optional)
Heating rate	0,1 up to 100°C/min (depends on furnace)
Temperature precision	± 0,05°C
Temperature accuracy	± 0,3°C (substance calibration)
Data evaluation rate	max. 10/s

TG	
Resolution	0.1/0.5 µg
Max. sample volume TG	3,0 ml
Measuring range	25 / 2500 mg

DSC	
DSC-sensors	E / K / S / B
DSC resolution	0,3 / 0,4 / 1 / 1,2 µW
Max. sample volume DSC	0,12 ml

DTA	
DTA-resolution	0,05 µV
DTA-measuring ranges	250 / 2500 µV
Max. sample volume DTA	0,3 ml

L I N S E I S

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Services: Service Lab, Calibration Service

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