LINSEIS

CALNEOS

UDSC L64
CAL L92
UHG L44

Product **Overview**

WWW.LINSEIS.COM

Since 1957 LINSEIS Corporation has been delivering outstanding service, know-how and leading innovative products in the field of thermal analysis and thermo-physical properties.

Customer satisfaction, innovation, flexibility, and high quality are what LINSEIS represents. Thanks to these fundamentals, our company enjoys an exceptional reputation among the leading scientific and industrial organizations. LINSEIS has been offering highly innovative benchmark products for many years.

The LINSEIS business unit of thermal analysis is involved in the complete range of thermoanalytical equipment for R&D as well as quality control. We support applications in sectors such as polymers, chemical industry, inorganic building materials, and environmental analytics. In addition, thermophysical properties of solids, liquids, and melts can be analyzed.

Rooted in a strong family tradition, LINSEIS is proudly steered into its third generation, maintaining its core values and commitment to excellence, which have been passed down through the family leadership. This generational continuity strengthens our dedication to innovation and quality, embodying the essence of a true family-run business.

LINSEIS provides technological leadership. We develop and manufacture thermoanalytic and thermophysical testing equipment to the highest standards and precision. Due to our innovative drive and precision, we are a leading manufacturer of thermal analysis equipment.

The development of thermoanalytical testing machines requires significant research and a high degree of precision. LINSEIS Corp. invests in this research to the benefit of our customers.

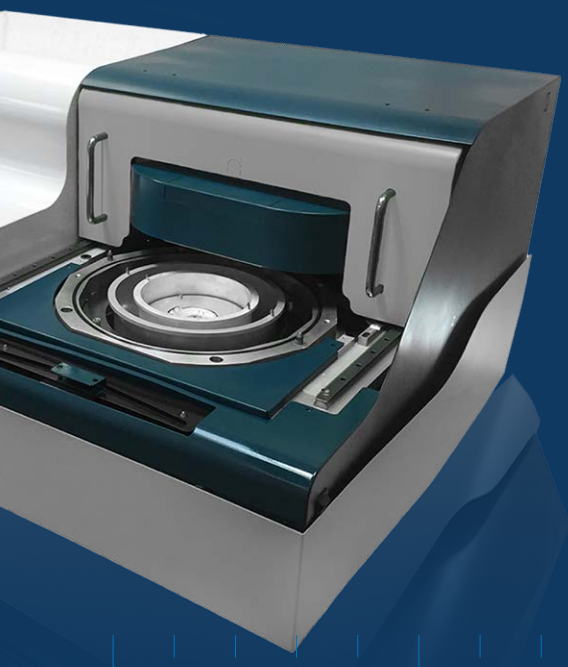
CLAUS LINSEIS

CEO DIPL. PHYS.

Engineering & Innovation

To strive for the best due diligence and accountability is part of our DNA. Our history is affected by German engineering and strict quality control.

We want to deliver the latest and best technology for our customers. LINSEIS continues to innovate and enhance our existing thermal analyzers. Our goal is to constantly develop new technologies to enable continued discovery in Science.



Linseis **Service**

Customized Solutions - The Linseis Advantage

At Linseis, we believe that every measurement challenge is unique — and so should be your instrument.
While many suppliers rely on standardized configurations, Linseis distinguishes itself through exceptional flexibility and the capability to deliver customer-specific adaptations in record time.

Our experienced engineering teams work hand in hand with you to design and implement fully customized solutions that meet your precise application requirements — whether that means a unique sensor configuration, an extended temperature range, or a specialized software integration.

With decades of experience and a modular product architecture, we turn customization into a standard service — fast, efficient, and reliable.
Choose Linseis and experience what true flexibility in thermal analysis and material characterization means.

Contact form

Service & Support

Redefining Ownership

When investing in analytical instrumentation, long-term value matters just as much as precision. That's why Linseis systems are engineered to deliver the lowest **Total Cost of Ownership** in their class — combining reliability, efficiency, and flexibility in every detail.

Our instruments are built with robust, high-quality components designed for longevity and minimal maintenance. This means fewer service interventions, shorter downtimes, and reduced operating costs over the entire product lifetime. Intelligent software updates and remote support further ensure that your system remains state-of-the-art, even years after installation.



Calorimetry

Linseis *Calneos* - Product Line

With the integration of Calneos, Linseis is expanding its portfolio to include highly sensitive calorimetry systems, thereby strengthening its technological leadership in thermal analysis.

Calneos' expertise in micro, low-temperature, and high-precision calorimetry perfectly complements the existing product range and opens up additional fields of application in pharmaceuticals, life sciences, specialty chemicals, and energy materials.

The combination of both areas of expertise creates a comprehensive, scientifically robust portfolio—from extremely small heat effects to high-temperature processes.

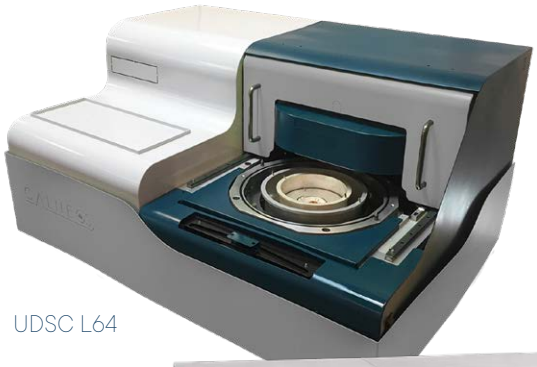
	Key Features
Ultimate DSC L64	Highest sensitivity, minimal sample volumes, extremely stable baseline, precise temperature control
Ultimate DSC L64 LT	Low-temperature DSC without LN_2, high efficiency, stable cryogenic performance, ideal for Tg studies at low temperatures
Micro Calorimeter CAL L92	Small thermal effects, isothermal long-term stability, reaction calorimetry, broad range of cells

Linseis *Calneos* Ultimate DSC L64

The **DSC L64** was developed for advanced applications in biochemical, biophysical, and pharmaceutical research and offers high-precision measurements of phase transitions in liquid, gel-like, or solid samples.

The system covers a temperature range from -60 °C to 160 °C with scan rates up to 10 °C/min and offers precise control of thermal conditions. It also allows the investigation of highly concentrated solutions, gels, and solids with minimal sample consumption. Thanks to the removable cells, no cleaning procedure is required, which reduces downtime and avoid cross contamination. Automation options improve the efficiency of the system for both routine analysis and research.

The **UDSC L64-LT** expands the capabilities of the standard UDSC L64 with an exclusive low-temperature option. Equipped with a state-of-the-art cooling system, it enables measurements from -170 °C without the use of liquid nitrogen.



UDSC L64

UDSC L64-LT

	UDSC L64	UDSC L64-LT
Temperature range	-60 °C up to 160 °C	-170 °C up to 50 °C
Ramp speed	0.001 to 10°C/min	0.001 to 3 °C/min
Control accuracy	100 µ°C	100 µ°C
Sample volume	5 to 100 µL	5 to 100 µL
Sensitivity	800 µV/mW	at -150 °C, 300 µV/mW
Unique features	Direct T sample measurement Joule effect calibration High sensitive patented sensor	Direct T sample measurement Joule effect calibration High sensitive patented sensor -170 °C without LN_2

Linseis *Calneos* Micro Calorimeter L92

The **CAL L92** from Linseis Calneos is a highly sensitive microcalorimeter calorimeter designed for maximum precision in thermal analysis. With its unique sensor design, direct measurement of sample temperature, and Joule effect calibration, it offers unmatched accuracy in the analysis of solids, liquids, and even highly diluted solutions.

Equipped with interchangeable measuring cells, the system covers a wide range of applications. Batch and high-pressure Cp cells enable high-precision heat capacity determinations, while dual-chamber and flow cells enable advanced studies of chemical reactions, mixture enthalpies, and measurements under pressures up to 1000 bar.

	CAL L92
Temperature range	–60 °C* up to 170 °C
Scanning rate	0.001 up to 5 °C/min
Temperature precision regulation	100 µ°C
Sensor type	Peltier Element
Sample volume	up to 850 µl **
Unique feeatures	Direct T sample measurement built-in Joule effect calibration
Measurement range	+/- 150 mW
RMS noise	0.05 µW
Calibration	Recommended 6-month interval

* depends on chiller
** depends on vessel type

Linseis *Calneos* UHG L44

For many applications in thermal analysis, the atmosphere plays an important role as it may affect the sample behavior or initiate reactions. Humidity influence on building materials, storage time of pharmaceuticals and foods or influence on mechanical properties of polymers are just some of the most common examples.

The **UHG L44** creates an atmosphere containing water vapor by passing a gas through warm water and saturating it. The gas is then adjusted to a pre-set relative humidity of 100% RH by adding dry air using a dew point sensor. Customized configurations for carrier gas and compositions can be ordered, using additional MFCs or external dew point sensors.

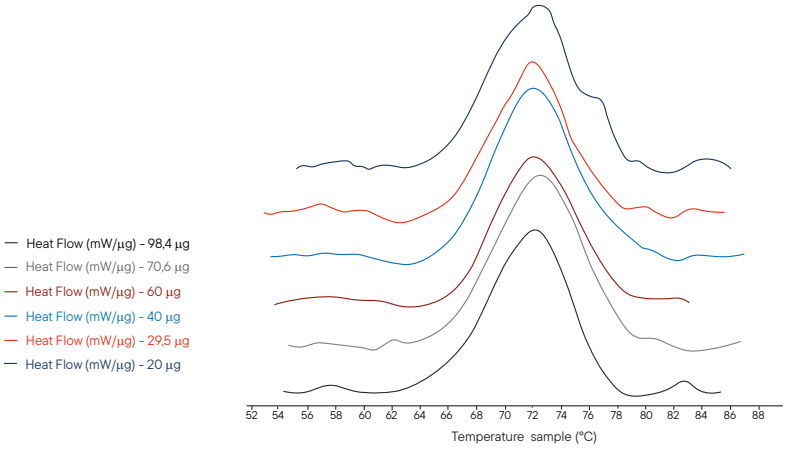
	UHG L44
Temperature range	5 °C up to 95 °C
Relative Humidity	5 % up to 95 %
Flow rate	0 - 5000 ml/min (other flow on request)
Precision RH	+/- 0.8 % Stability <1 % on 10-80 % Stability <2.5 % on extreme RH
Temp. accuracy	Stability <0.05 °C
Transfer line	Integrated 2m

More Applications

Applications

Denaturation of Lysozyme

Measured with UDSC L64

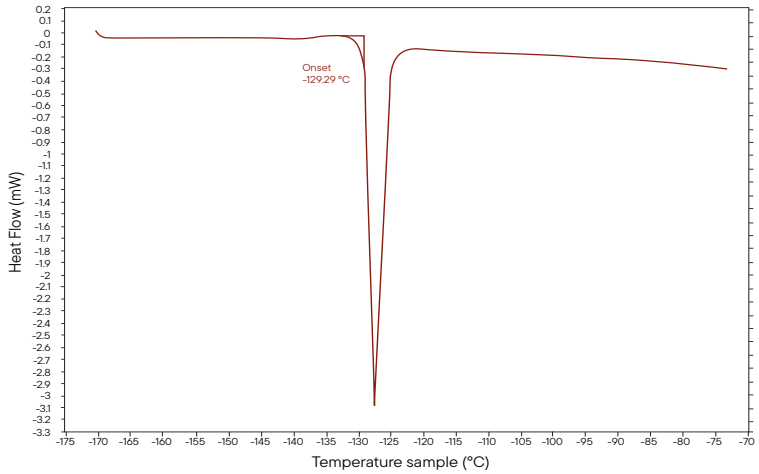


In biochemical, biophysical or pharmaceutical research, proteins are an important subject in the development of new drugs or treatments. The stability parameters of these proteins are necessary for all these developments, so it is essential to know, for example, the denaturation
temperature of the proteins as well as the energy required for denaturation (denaturation enthalpy temperature).

The technology most commonly used to access to these thermodynamic parameters is the differential scanning calorimetry (DSC). A major problem with this technology is the amount of protein used to obtain usable results: up to 1 ml per experiment for proteins that can be very expensive to produce.
LINSEIS *Calneos* has developed a calorimeter that allows less than 100 µL of sample, thus drastically reduces the amount used. The cells are extractable and no difficult and often unreliable cleaning procedures are required.

Melting of Methylcyclohexane

Measured with UDSC L64 LT

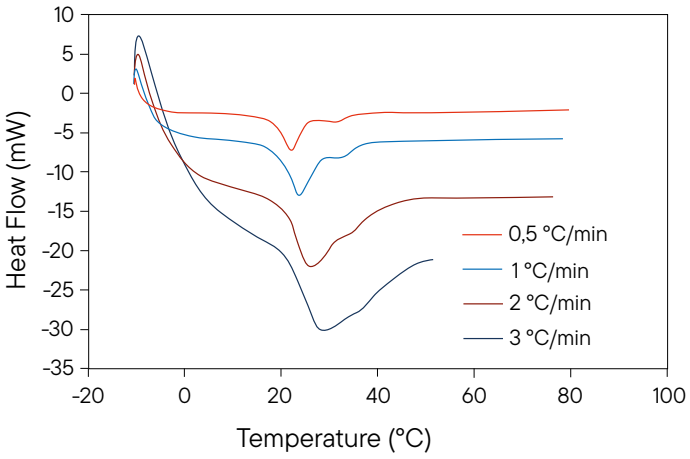


The Ultimate DSC L64 LT offers revolutionary performance for materials characterisation. In many materials characterisation applications, reaching sub-ambient temperatures is essential, particularly for :

- Determining glass transitions in amorphous materials
- The analysis of solid-solid phase transitions, particularly popular in pharmaceutical applications

These studies often require restrictive cooling systems, with an almost systematic dependence on liquid nitrogen to go below -90 °C, a limit imposed by the cooling units of conventional DSCs.
With its innovative cooling system, the **UDSC L64 LT** is revolutionizing the field by overcoming this limit and completely eliminating the need for liquid nitrogen. Give your research unprecedented precision and simplicity.

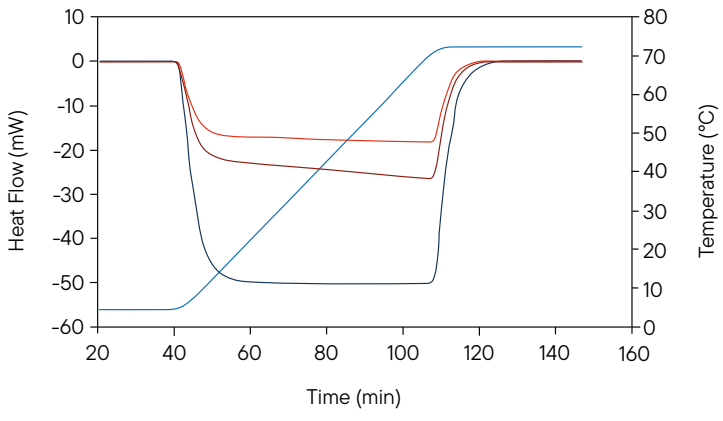
PTFE Analysis



Measured with CAL L92

A 524 mg PTFE cylinder was placed in the measurement cell while the reference cell remained empty. The CAL L92 was programmed to perform several heating ramps between -10 °C and 80 °C, at scanning speeds of between 0.5 °C and 3 °C/min. The thermograms obtained are shown opposite. At all the speeds tested, the two Teflon phase transitions were observed. The separation of the two transitions is all the more marked on the thermograms when the scanning speed is low.

Volumic heat capacity of liquids



Volumic Heat Capacities of ethanol, water and cyclohexane were measured using a scan rate of 1°C/min. Derived Cp values at 40°C (in (J/mL/°C) perfectly match with literature:

Cp vol. at 40 °C (J/ml/°C)	Literature	Measured
Water	4.15	4.13
Ethanol absolute	1.99	1.99
Cyclohexane	1.45	1.45

LINSEIS GmbH Germany

Vielitzerstr. 43
95100 Selb

Tel.: (+49) 9287 880 0
E-mail: info@linseis.de

LINSEIS Inc. USA

109 North Gold Drive
Robbinsville, NJ 08691

Tel.: (+1) 609 223 2070
E-mail: info@linseis.com

LINSEIS China

Kaige Scientific Park
Room 120, Building T3, No.1220
Yuqiao Road, Pudong, Shanghai

Tel.: (+86) 61 90 12 03
Tel.: (+86) 50 55 06 42
E-mail: info@linseis.com.cn

LINSEIS India

Plot 65, 2nd Floor, Sai Enclave,
Sector 23, Dwarka05-800
110077 New Delhi

Tel.: +91-11-42883851
E-mail: sales@linseis.in

WWW.LINSEIS.COM

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