

CRYO AND HUMIDITY CHAMBER

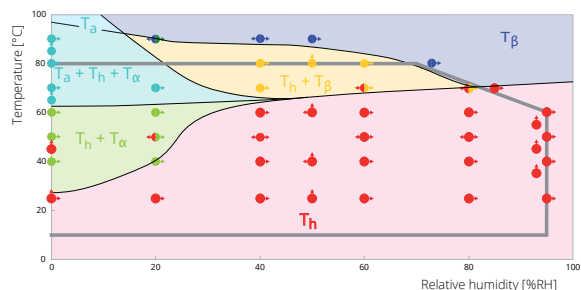
CHC PLUS⁺ - NON-AMBIENT ATTACHMENT FOR XRD

The CHC plus⁺ chamber is designed for powder X-ray diffraction measurements and allows to perform both high- and low-temperature experiments and experiments under controlled temperature and humidity conditions.

Benefits

- Humidity experiments with full automatically combined control of temperature and humidity
- Wide temperature and relative humidity ranges
- Accurate temperature measurement with a thermocouple close to the sample
- Easy handling and exchange of sample
- No realignment after sample exchange
- Beam knife to minimize background at low angles.

Application example



Detailed study of the temperature-relative humidity phase diagram of trehalose dihydrate. Gray solid line highlights the specified spec of the CHC plus⁺ chamber.

Ref.: Application note 'Temperature- and humidity-controlled XRD' available on www.malvernpanalytical.com.

For the application example using a dry atmosphere regime of the CHC plus⁺ chamber please refer to the card 'TTK 600 chamber'.



CHC PLUS⁺ - CHAMBER

Features



Heating / cooler (plate)

Humid air/nitrogen

- 5 to 95% RH (10 - 60°C)
- 5 to 70% RH (10 - 80°C)

Dry atmosphere with liquid nitrogen cooling

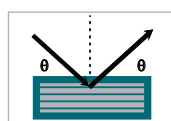
- -120°C to +300°C (N₂ atmosphere)
- -180°C to +400°C (vacuum)

Dry atmosphere with compressed air cooling

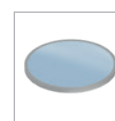
- -5°C to +300°C (N₂ atmosphere)
- -5°C to +400°C (vacuum)



Atmospheres

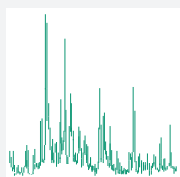


Flat plate reflection geometry.
Sample holders made of CuNi

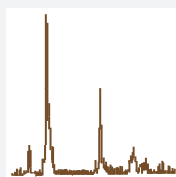


Zero-background insert

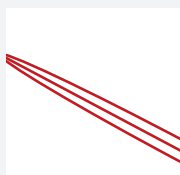
Applications



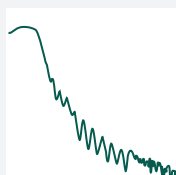
Powder XRD



Grazing incidence XRD*



Basic stress*



Basic reflectivity*

* Limited sample alignment options (no tilt and rotation axis)

Conclusion

The CHC plus⁺ chamber is a versatile chamber enabling a wide range of experimental conditions. It is an ideal choice for a case where both a wide temperature range and controlled humidity is required for *in situ* X-ray diffraction studies of both organic and inorganic powders and solids.

MALVERN PANALYTICAL

Groveswood Road, Malvern,
Worcestershire, WR14 1XZ,
United Kingdom

Tel. +44 1684 892456
Fax. +44 1684 892789

Lelyweg 1,
7602 EA Almelo,
The Netherlands

Tel. +31 546 534 444
Fax. +31 546 534 598

info@malvernpanalytical.com
www.malvernpanalytical.com