

# Studies Under Controlled Temperature and Relative Humidity Conditions

## CHC plus<sup>+</sup>

CHC plus<sup>+</sup> is a unique combination of the multi-purpose CHC Cryo & Humidity Chamber and an advanced relative humidity (RH) generator for in-situ X-ray diffraction studies at low and high temperatures as well as under controlled humidity conditions.

The gas humidifier is mounted directly on the CHC plus<sup>+</sup> chamber and the humidity is controlled with a calibrated RH sensor located inside CHC close to the sample.

The chamber housing is temperature-controlled with a water bath.

This set-up together with the excellent control performance of the RH generator provides uniform and well defined humidity conditions around the sample.

All types of experiments can be done in one go without removing the sample. Easy sample preparation without the need for realignment after sample exchange considerably speeds up measurement preparations.

The large temperature range combined with the possibility to control the humidity around the sample make CHC plus<sup>+</sup> the ideal tool for XRD studies of temperature- and humidity- induced changes of crystal structures.



## Typical applications

- ▶ Temperature- and humidity-induced changes in pharmaceutical substances and food ingredients
- ▶ Polymorphism in APIs
- ▶ Hydration/Dehydration of zeolites and clay minerals
- ▶ Hardening processes in building materials



## Technical data

RH range:	2 to 95 %RH from 10 to 60 °C 2 to 70 %RH at 80 °C
Temperature range:	-180 to 400 °C (vacuum) -120 to 300 °C (dry air)
Atmospheres:	(humid) air, inert gas, nitrogen, vacuum (10 <sup>-2</sup> mbar)
X-ray geometry:	reflection