



MHC-trans – Multi-sample Humidity Chamber

The MHC-trans Multi-sample Humidity Chamber is the first sample stage for in-situ powder XRD which enables you to simultaneously investigate up to 8 samples in transmission geometry with perfect control of sample temperature and humidity. The combination of multi-sample capability and transmission geometry makes MHC-trans ideal for studies of humidity- and temperature-induced structure effects in organic materials.

The non-ambient sample changer – boosting in-situ XRD.

Multi-sample capability for increased experimental throughput

Humidity-driven structure changes in materials are often slow, and studying these changes can take days or weeks.

With the MHC-trans Multi-sample Humidity Chamber you can investigate up to 8 samples at the same time and speed up your work significantly. All samples are kept under the same conditions, and each sample can be moved into the X-ray beam to record a diffractogram whenever necessary.

Transmission geometry for high data quality

The transmission geometry with focusing beam optics offers several advantages for X-ray studies of organic compounds in humid atmosphere: higher resolution, better signal-to-background ratio and less sensitivity to volume changes of the sample. MHC-trans provides a scan range from $2^\circ 2\theta$ to $55^\circ 2\theta$ and can be operated with the X-ray tube above or below the sample stage.

Sophisticated design for well-controlled sample conditions

MHC-trans features accurate and uniform temperature control of the complete sample compartment from -10°C to 150°C by environmental heating/cooling with Peltier elements. The device for humid gas generation is attached to the sample stage, and the calibrated sensor for relative humidity control is integrated in the chamber. Humidity control is possible up to 80°C , the full humidity range from 5 %RH to 95 %RH is available from 10°C to 60°C .

High level of integration for ease of use

Despite the number of settings necessary for an in-situ experiment with multiple samples and defined sample temperature and humidity, remote control of MHC-trans can be done with one control unit, the TCU 60M. The TCU 60M directly controls the sample temperature as well as the sample changer and it serves as the interface to the advanced MHG Modular Humidity Generator.



Features and Benefits

- ▶ Simultaneous temperature and humidity control for XRD measurements of up to 8 samples
- ▶ Optional transmission geometry with X-ray tube above and below the sample stage possible
- ▶ Uniform and accurately controlled temperature and humidity conditions for all samples
- ▶ Easy loading and unloading of the sample changer
- ▶ Compact design

Applications

- ▶ Temperature- and humidity-induced structure changes
- ▶ In-situ studies of drug polymorphism
- ▶ Hydration and de-hydration of materials
- ▶ Humidity-induced crystallization
- ▶ Shelf life studies for drugs and food

Technical specifications

Humidity:	5 %RH to 95 %RH at 10°C to 60°C 5 %RH to 70 %RH at 80°C
Temperature range:	-10°C to 150°C
No. of samples:	max. 8
Atmospheres:	(Humid) air/nitrogen, inert gas
X-ray geometry:	Transmission
Scan range:	$2^\circ 2\theta$ to $55^\circ 2\theta$

Your distributor: