

The BTS 150 and BTS 500 are the compact Anton Paar chambers designed for basic heating experiments on benchtop diffractometers in the temperature range from -10 °C to +150 °C (using BTS 150) and from ambient to +500 °C (using BTS 500).

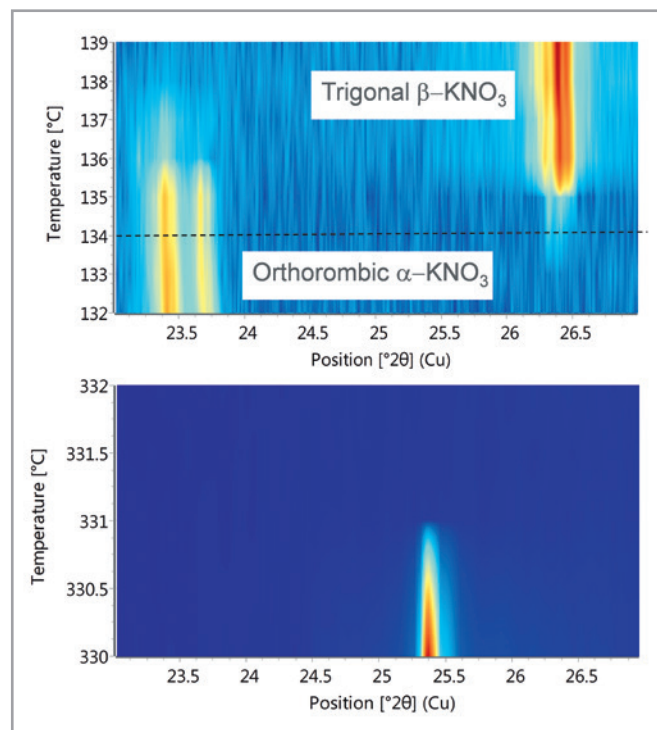
Non-ambient attachment for XRD

BTS 150 and BTS 500 – benchtop heating chambers

Benefits

- Compact design with the integrated temperature controller
- Fast heating and cooling
- Accurate temperature measurement with a thermocouple close to the sample
- High position stability and minimum thermal expansion of the sample holder
- Sample conditioning in air, inert gas and vacuum
- Easy handling and exchange of samples
- Beam knife to minimize background at low angles

Application example

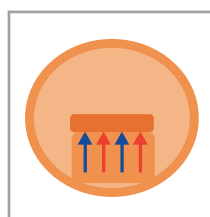


(Top) phase transformation from α - to β -phase of KNO_3 observed at ~ 134 °C (literature value is ~130 °C). (Bottom) melting of KNO_3 occurred at ~ 331 °C (literature value is ~334 °C). The data are courtesy of Anton Paar GmbH, Austria

BTS 150 and BTS 500 chambers



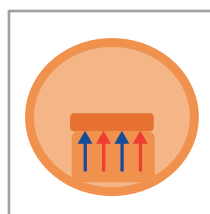
Features



Heating/cooling plate

BTS 150

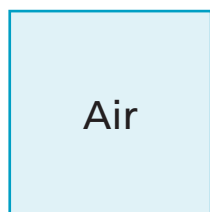
- -10 °C to +150 °C (dry N₂, air, vacuum)
- -10 °C to +100 °C (helium)



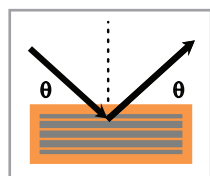
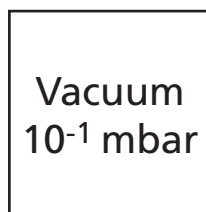
Heating plate

BTS 500

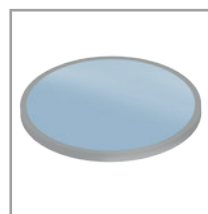
- ambient to +500 °C (N₂, air, vacuum)
- ambient to +300 °C (helium)



Atmospheres

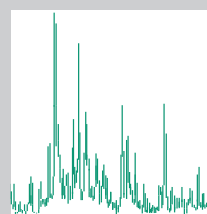


Flat plate reflection geometry. Sample holders made of nickel or Al₂O₃.

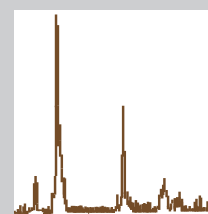


Zero background insert

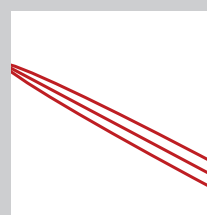
Applications



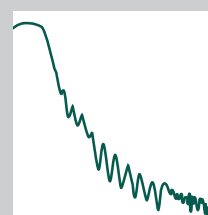
Powder XRD



Basic grazing-incidence XRD*



Basic stress*



Basic reflectivity*

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

Conclusion

The BTS 150 and BTS 500 non-ambient chambers are compact, cost-effective solutions for Empyrean and X'Pert³ Powder. Basic *in situ* studies of phase transformations or structural changes in polycrystalline inorganic and organic samples can be easily performed.