

Latest developments in non-ambient XRD attachments from Anton Paar

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Non-ambient XRD has developed into a vital tool for a complete understanding of a materials behavior under different environmental conditions. Parameters such as temperature, pressure, relative humidity, gas environments (including reactive or explosive gases), mechanical load, and electric fields, can be altered allowing samples to be measured in-situ under real world conditions.

The latest developments from Anton Paar in the field of non-ambient XRD will be presented. These include methods to maximize the temperature accuracy and stability of the non-ambient attachment while minimizing the deviation between the actual sample temperature and that displayed on the non-ambient control unit. In addition, new specialized sample holders have been developed for the measurement of battery samples in-operando while changing the sample temperature and also to offer solutions for highly air sensitive samples during transfer to the non-ambient chamber and during measurement. Measurement data showing potential applications and the deviation in temperature between the set point and actual sample temperature will be presented.