

Figure 1. Structural response of a P3HB fiber to increasing tensional forces. 2Theta scans of equatorial sectors in the WAXD pattern. Under load, the orientation of the amorphous phase is enhanced, to the disadvantage of the orientation in the crystalline phase.

Keywords: fiber, melt-spinning, biopolyester, biopolymer, wide-angle X-ray diffraction, WAXD, small-angle X-ray scattering, SAXS

MS43-P14 STOE InSitu HT2 – a new in-situ reaction chamber in Debye-Scherrer geometry

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STOE & Cie GmbH in Darmstadt, Germany, has developed a new equipment for their STOE STADI P powder diffractometer series, the InSitu HT2. This new reaction chamber in Debye-Scherrer geometry is mounted on a vertical setup Goniometer with Mo K α radiation and offers the user a horizontal capillary with up to 2mm inner diameter to expose the sample to high temperatures up to 1600 K and a gas flow through the capillary of 10 - 100 ml/min.

The sample volume is in the area of some mm³, only, offering real micro sample investigations under non-ambient conditions and reactive gases. First test measurements with a carbon coated Pt – Ru catalyst [1] under oxygen atmosphere at T from RT – 300°C showed impressively that the STOE InSitu HT2 fills a gap in the field of commercial available in-situ cells in transmission geometry.

Figure 1 shows the appearing RuO₂ reflections with those of the Pt-Ru alloy and the carbon matrix.

[1] C. Roth, N. Martz and H. Fuess., *Phys. Chem. Chem. Phys.*, **2001**, 3, 315-319.

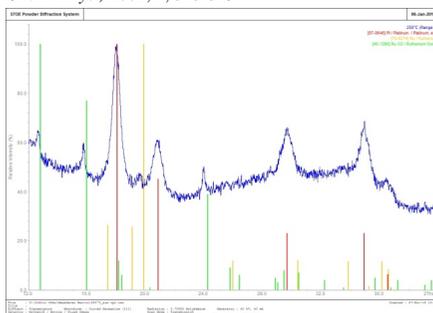


Figure 1. X-ray pattern at 250°C (blue) with the markers for Pt (red), Ru (yellow), and RuO₂ (green)

Keywords: XRPD, non ambient methods, X-Ray diffraction, in situ measurements, reaction chamber