

Beamline 1-4 Sample Environments: Oven

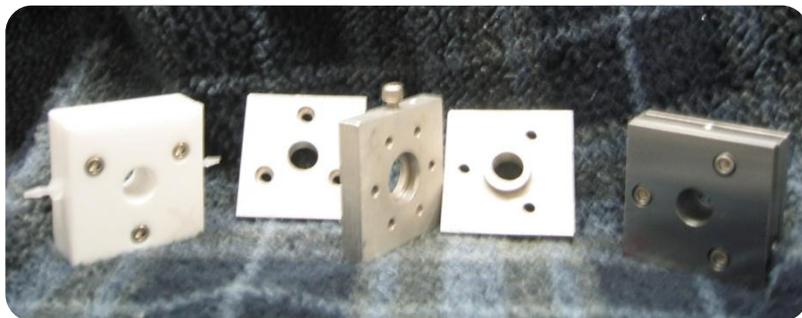


Device: Oven

Use: In-situ transmission SAXS studies of solid, fluid, gel, powder samples or colloidal suspensions in cells designed to provide good thermal contact with oven

Capacity: Temp control: $25\text{ }^\circ\text{C} < T < 450\text{ }^\circ\text{C} \pm 1\text{ }^\circ\text{C}$. Latest model $25\text{ }^\circ\text{C} < T < 400\text{ }^\circ\text{C}$ also has ability to allow in-situ titration

Oven Cell Holders (right): assemble as three parts with windows & O-ring gaskets. Available in Al, Steel or PTFE (Teflon). Teflon cells have flow couplings for in-situ titration. Volume $\sim 2.5\text{ cc}$; Optical path length = 1 mm



Showcase Project: Transport in Nano-structured Media

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SAXS reveals that the macro-phase of copolymer displays stable coexistent mesophases of lamellar and hexagonally cylindrical morphologies as a function of volume fraction of a selectively solvent ionic liquid. At high block copolymer concentrations, a “salt-like” regime corresponding to an increase in the block copolymer T_g is observed, while at intermediate block copolymer concentrations, a “solvent-like” regime corresponding to a decrease in the block copolymer T_g is observed.

