Microstructural Evolution in Rapidly Quenched ZrO_2-3 mol% Y_2O_3 by Annealing

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ZrO_2-3 mol % Y_2O_3 was rapidly quenched from melts, and annealed at 1700°C for 48 h in air. X-ray diffraction analysis and TEM observation revealed that the tetragonal phase in as-quenched samples was nontransformable and the phase in annealed samples was transformable under external streesses. The tetragonal phase in as-quenched samples was formed by diffusionless transformation of the cubic phase. Upon annealing, the microstructures did not change discontinuously, but the tetragonal twins coarsened.
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Preparation of Zirconia Ceramics with Straight and Uniform-Sized Channels

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Firing of zirconia (Y_2O_3 : 3 mol%) powder-carbon fiber compact in air at 1500°-1600°C gave a zirconia ceramics with straight channels of uniform diameter.
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