

## Development of Shear Banding in Sandstone

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Closed-loop, servo-controlled compression tests were conducted to investigate the development of shear banding in Berea sandstone. The experiments were performed with a Vardoulakis-Goldscheider type plane-strain apparatus, designed to allow the shear band to develop in an unrestricted manner. Dilatancy and friction were evaluated at three confining pressures, and several tests were halted in the strain-softening regime. Thin section microscopy and digital image analysis provided direct observations of the shear band. Porosity increase within the shear band was 4-8 grain diameters wide and associated with intragranular microcracks; increased porosity did not extend beyond the tip of the shear band.

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