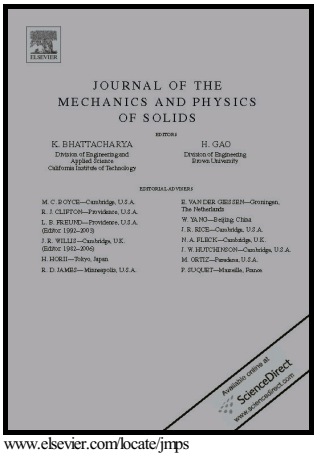

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Identification of the Crushing Behavior of Brittle Foam: From Indentation to Oedometric Tests

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Abstract

Compaction of the core of plasterboard is one of the limiting phenomena for its mechanical performance. This mechanism is studied herein in an indentation test. A cylinder made of foamed gypsum is indented *in-situ* in an X-ray lab tomograph with a sphere of millimeter radius. The reported experiments show that foamed plaster displays a sharp transition between an undamaged state (with linear elastic behavior) and a compacted state with collapsed porosity under the indenter. Tomographic acquisitions of the sample under load associated with a global version of Digital Volume Correlation allow displacement fields to be measured at different load levels. However, because of the heterogeneous nature of the indentation test, a fine spatial resolution of the displacement fields is required to measure the strains at the crush-

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