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Title: Application of TCD for brittle fracture of notched PUR materials

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Abstract: The notch effect in Polyurethane materials of different densities is investigated. Tensile specimens with lateral V and U symmetric notches and with holes of different diameters were tested. The material parameters inherent stress and critical distance are determined using a linear elastic finite element analysis in conjunction with experimental results of average maximum load. The paper proposed an original correlation between critical distance and the cell diameter of the cellular structure, respectively between inherent stress and the ultimate tensile strength of Polyurethane materials. Then for single edge notch specimens a relationship between critical distance and applied mixed mode is found and successfully applied to assess the brittle mixed mode of Polyurethane materials. (C) 2015 Elsevier Ltd. All rights reserved.

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