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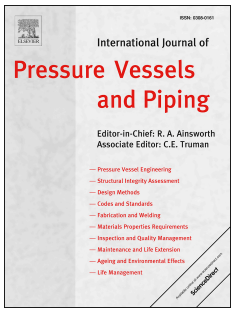

Progress in development of fracture toughness test methods for SENT specimens

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Progress in Development of Fracture Toughness Test Methods for SENT Specimens

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ABSTRACT

Fracture toughness testing using clamped single edge notched tension (SENT) specimens has been receiving broad attention in the oil and gas industry for direct measurement of low-constraint fracture toughness of pipeline steels. In order to develop robust SENT fracture toughness test methods, this paper reviews and summarizes existing SENT test methods, including the DNV practice, CANMET procedure, ExxonMobil method and BS 8571 standard, and their recent progress. Typical results are analyzed and compared with regard to the stress intensity factor solution, *J*-integral estimation, CTOD calculation and crack size measurement. On this basis, recommendations are made. Further studies and applications of SENT testing are also discussed.

Keywords: SENT, stress intensity factor, *J*-integral, CTOD, fracture toughness