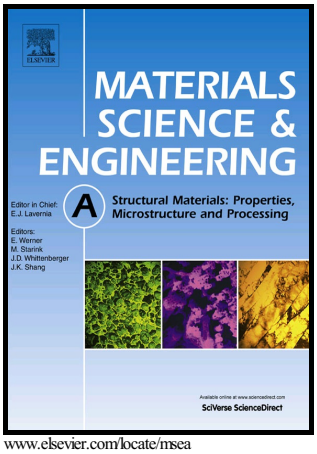

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ABSTRACT

A new standard is currently being developed under the auspices of ECISS/TC 101 WG1 for the small punch testing technique for the estimation of both tensile and creep properties. Annex G of the new standard is covering the assessment and evaluation of small punch creep (SPC) data. The main challenge for estimating uniaxial creep properties from SPC data is the force to equivalent stress conversion between SPC and uniaxial creep tests. In this work a range of SPC assessment methodologies, benchmarked for the standard, are compared for verifying the best practice used in the standard. The estimated equivalent stresses for SPC are compared to uniaxial creep stresses at equal rupture times, using three alternative models. In-depth analyses are performed on SPC and uniaxial creep data for P92, F92 and 316L steel tested within an inter-laboratory round robin. The formulation for SPC equivalent creep strain rate in the standard is also assessed.

Keywords: Small Punch Creep test, SPC, creep strength, creep strain rate, standardization