ODIN - Small Punch Tensile/Fracture Test Datasets on Grade 91 steel from cryogenic to room temperature

Abstract:
Data collection containing small punch tensile/fracture data for tests on Grade 91 ferritic/martensitic steel performed between cryogenic and room temperatures. The material has the same chemical composition as P91/ T91 but is supplied in form of a plate rather than as pipe (P91) or tube (T91). The particular batch of Gr. 91 used in the present work (S50460) as part of the FP7 project MATTER was originally produced for the FP6 project EUROTRANS (project domain 4: DEMETRA). Disc-shaped small punch (SP) specimens as specified in the European Code of Practice were used. Their diameter was 8 mm and their thickness 0.5 mm. The surface roughness was less than Ra = 0.15 um on both sides. SP tensile/fracture mechanics tests were performed with varying displacement rates and temperatures as listed in Table 1. On the specimens tested at 0.5 mm/s X-ray computed tomography analysis has been carried out and the 3D surface has been reconstructed.

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