Fine (Cr,Fe)\textsubscript{2}B borides on grain boundaries in a 10Cr–0.01B martensitic steel

A 10Cr creep resistant martensitic steel with 108 ppm B was normalized at 1100 °C for 1 h and air cooled. Fine (Cr,Fe)\textsubscript{2}B borides were observed on the majority of prior austenite grain boundaries, all of which were high angle boundaries, as revealed by EBSD-based reconstruction of parent austenite grains. Some high angle boundaries including twin boundaries were boride-free. Segregation of boron to austenite grain boundaries during slow cooling from 1100 °C led to boride nucleation and growth. Their size increased with decreasing cooling rate. Borides were verified by atom probe tomography, auger spectroscopy, transmission and scanning electron microscopy.

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