

FATIGUE CRACK PROPAGATION IN FERRITE-PEARLITE RAILWAY WHEELS

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An extensive experimental study of the fatigue crack propagation in the steel of typical UIC R7 grade railway wheel (a hot rolled, rim quenched, 0,5%C plain carbon steel wheel) has been carried.

Crack propagation rates in stage II are nearly unaffected by the quantitative microstructural variations or by the degree of structural anisotropy encountered in the wheel. A minor but significant influence of load ratio, R , has been found.

The results confirm most previously published data on ferrite-pearlite structures and provide an upper-bound for crack propagation rates that is currently used at CEIT to predict in-service lives of wheels under thermomechanical loading.