

1. Structure-fatigue property relationship in high strength low-carbon martensitic steel

Gao, Huilin (1); Tan, Yuxu (1); Wang, Xiaotian (1)

Source: *Jixie goneheng Xuebao*, v 24, n 4, p 34-40, Dec 1988; **Language:** Chinese; **ISSN:** 05776686

Author affiliation: (1) Xi'an Petroleum Inst, China

Abstract: An investigation has been made on the relationship between microstructure and fatigue. The results of experiment show that the experimental steel has excellent fatigue strength and good resistance to fatigue crack propagation when tempered at low temperature. The dominant microstructural feature that contributes to fatigue strength is a dislocated martensite matrix and carbides in martensite. For the rate of fatigue crack propagation, the contribution is the orientation difference between adjacent martensite packets, martensite lathes and retained austenite in the form of a thin interlath film. The factors affecting deterioration of fatigue behavior in the tempered martensite embrittlement range are also discussed. (0 refs)

Main heading: Carbon Steel

Controlled terms: Iron and Steel Metallography--Microstructures - Steel Heat Treatment--Tempering

Uncontrolled terms: Fatigue Crack Propagation - Structure-Fatigue Relationships - Temper-Embrittlement

Classification Code: 531 Metallurgy and Metallography - 537 Heat Treatment - 545 Iron and Steel

Treatment: Experimental (EXP)

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2023 Elsevier Inc.