

论文

T/P91钢在高应力条件下蠕变行为的CDM模型模拟

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摘要: 通过对超临界火电机组用T/P91耐热钢的蠕变数据分析, 探讨了T/P91钢在600℃下不同应力范围内的蠕变机制以及服役过程中的蠕变损伤, 并使用基于材料物理本质建立的CDM(continuum damage mechanics)模型来模拟高应力范围内T/P91钢的蠕变曲线, 将模拟结果与文献中的实验数据进行对比, 表明模拟结果是可信的.

关键词: T/P91钢 蠕变机制 蠕变损伤 CDM模型

CDM MODELING OF CREEP BEHAVIOR OF T/P91 STEEL UNDER HIGH STRESSES

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Abstract: For safe use of the equipments in power plants, creep life prediction of the material served at high temperature is an important issue. With the purpose of the existing problems in overestimation of creep strengths, it is essential to analyze the creep mechanism and the creep damage to material in serving. In the present work, through analysis on creep curves of the T/P91 thermal resistant steel served in the super critical steam conditioned thermal power plants, the creep mechanism and the creep damage of T/P91 steel during creeping at 600℃ were discussed, and CDM (continuum damage mechanics) model established based on the physical nature was used to simulate the creep curves of T/P91 steel under high stresses. The modeled creep curves are good in agreement with the experimental data.

Keywords: T/P91 steel creep mechanism creep damage CDM model

收稿日期 2011-05-16 修回日期 2011-07-13 网络版发布日期 2011-12-16

DOI: 10.3724/SP.J.1037.2011.00309

基金项目:

国家重点基础研究发展计划项目2008CB717802和2010CB630800, 国际热核聚变实验堆ITER计划专项项目2009GB109002及中国科学院知识创新工程重要影响方向项目KJCX2-YW-N35资助

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