

## Simulation of Uniaxial Ratcheting Behaviors of SA508-3 Steel at Elevated Temperature

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**Abstract :** Experimental results show that SA 508-3 steel exhibits temperature dependent cyclic softening characteristic and obvious ratcheting behaviors, and dynamic strain age was observed at temperature range of 200 °C to 350 °C. Based on these observations, a temperature dependent cyclic plastic constitutive model was proposed by introducing the nonlinear cyclic softening and kinematic hardening rules, and the dynamic strain age was also considered into the constitutive model. Comparisons between experiments and simulations were carried out to validate the proposed model at elevated temperature.

**Keywords :** constitutive model, elevated temperature, ratcheting, SA 508-3

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