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A Review on Creep Deformation and Damage Mechanism of Grade 91/92 Steels Imam Ul Ferdous¹, NA Alang^{1*} and J Alias²

¹Structural Performance and Materials Engineering (SUPREME) Focus Group, Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang, 26600, Pekan, Pahang, Malaysia.

²Department of Mechanical Engineering, College of Engineering, Universiti Malaysia Pahang, 26300, Gambang, Pahang, Malaysia.

**Corresponding authors*: imam.ul.ferdous@gmail.com, azuan@ump.edu.my, juliawati@ump.edu.my

Abstract

Creep deformation and damage are a significant issue for power generation plant sectors. This paper presents a review covering alloy elements, creep deformation and rupture mechanisms of Grade 91/92 steel. Factors that are affecting the creep deformation and rupture are also discussed. Based on the review, it is found that the creep deformation and rupture is mainly controlled by the dislocation and diffusion at high and low stresses, respectively. In addition, stress and temperature are the two important factors that affect the rate of creep deformation. This implies by the temperature-dependence of mechanical properties, dislocation, diffusion and other mechanisms at atomic level. Furthermore, higher stress values increase creep rates and shorten creep life.

Keywords: Grade 91/92 Steel; Creep; Mechanism; Failure.