

Design of Tunnel Linings in a Creeping Rock

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Abstract:

The effect of long term rock deformation on lining pressure is considered using different concepts of rock behaviour. These include the conventional characteristic-line or convergence-confinement method, modified to allow for rock ageing, and lining-rock interaction methods using models of linear-viscoelastic, linearelastic viscous, and linear elastic non-linear viscous rock behaviour. Calculations of lining pressures show that the former tends to underestimate it, compared with the latter.

Keywords: Tunnel linings; rock creep; rock strength; rock deformation; convergence.