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**Quasistatic viscoplasticity without safe-load conditions.** (English) Zbl 1477.35261  
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**Summary:** In the paper we present the existence theory to gradient-type quasistatic models of viscoplasticity. Our goal is to show the reader a new point of view to the existence of solutions to such models where no safe-load conditions are needed. In the classic approach authors use this kind of indirect assumption on data in order to obtain proper energy estimates, in our approach we propose how to omit such safe-load conditions by quite delicate estimates and due to considering a proper approximation of the initial problem.

**MSC:**

- 35Q74** PDEs in connection with mechanics of deformable solids
- 74C05** Small-strain, rate-independent theories of plasticity (including rigid-plastic and elasto-plastic materials)
- 74H20** Existence of solutions of dynamical problems in solid mechanics
- 35A01** Existence problems for PDEs: global existence, local existence, non-existence

**Keywords:**

inelastic deformation theory; quasistatic models; viscoplasticity; Yosida approximation; safe-load conditions; mixed boundary conditions

**Full Text:** [DOI](#)

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