Incremental constitutive description of SAE 5120 steel deformed under hot-working conditions

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Highlights

- A new incremental constitutive formulation is proposed
- A single apparent activation energy is employed for describing the parameters involved
- Yield, saturation and steady-state stresses, and t0.5 are given in terms of T and $\dot{\varepsilon}$
- Three incremental equations are employed in the constitutive description
- Experimental sharp and ramped transient loading schedules are analyzed with the new model