Stress, Strain, Elasticity and Plasticity

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Elasticity:

1. Quiz- Answers

1. What is strain rate? How does it affect the flow stress of a material?

Strain rate = strain/time = velocity/h or velocity/l.

Strain rate affects the flow stress in that when strain rate increases, flow stress increases.

2. Write the von Mises effective strain.

$$\bar{\varepsilon} = \frac{\sqrt{2}}{3} \left[(\varepsilon_1 - \varepsilon_2)^2 + (\varepsilon_2 - \varepsilon_3)^2 + (\varepsilon_3 - \varepsilon_1)^2 \right]$$

3. What is meant by effective strain?

Effective strain is that equivalent strain corresponding to effective stress.