

Elastic Region: Brittle materials exhibit elastic deformation at the initial segment of the stress–strain curve. This phase manifests as linear behaviour, and the material regains its original shape when the load is removed. The stress–strain relationship during this phase complies with Hooke's law. **Elastic Limit:** The elastic limit represents the highest stress level a brittle material can endure without incurring permanent deformation. If stress surpasses this threshold, the material won't revert to its initial shape once the load is relieved. **Fracture Point:** In contrast to ductile materials, which undergo notable plastic deformation, brittle materials encounter a fracture point relatively early within the stress–strain curve. This juncture marks the stress at which the material fractures. **Brittle Fracture:** Beyond the fracture point, brittle materials experience abrupt and unforwarned failure. Fracture in brittle materials stands out for its lack of substantial plastic deformation. Resulting fracture surfaces tend to appear smooth and clean.