

Young's modulus = E

@wikipedia

Material property of a **solid body** measuring as proportionality coefficient between **tensile stress** σ (force per unit area) and **axial strain** ϵ (proportional deformation) in the **linear elastic** region of a material:

$$(1) \quad E = \frac{\sigma}{\epsilon}$$

Young modulus depends on **porosity** as:

$$(2) \quad E = E_0 \cdot \left(1 - \frac{\phi}{\phi_c}\right)^f$$

where

E_0	Young modulus of solid material	
ϕ	porosity	usually $\phi \in 0 \div 0.4$
ϕ_c	critical porosity	usually $\phi_c \approx 1$
f	characteristic exponent	usually $f \in 1.1 \div 1.7$

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[[initial pore compressibility](#)]

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