

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)
$$E = \frac{\sigma}{\epsilon}$$

Young modulus depends on porosity as:

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

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 $f \in 1.1 \div 1.7$

See Also

Physics / Mechanics / Continuum mechanics / Continuum Body / Deformation

[Compressibility][Poisson's ratio ()]

[initial pore compressibility]

[Geomechanical Rock Modelling][Young modulus – Porosity @model][Young modulus – thermal expansion @model]