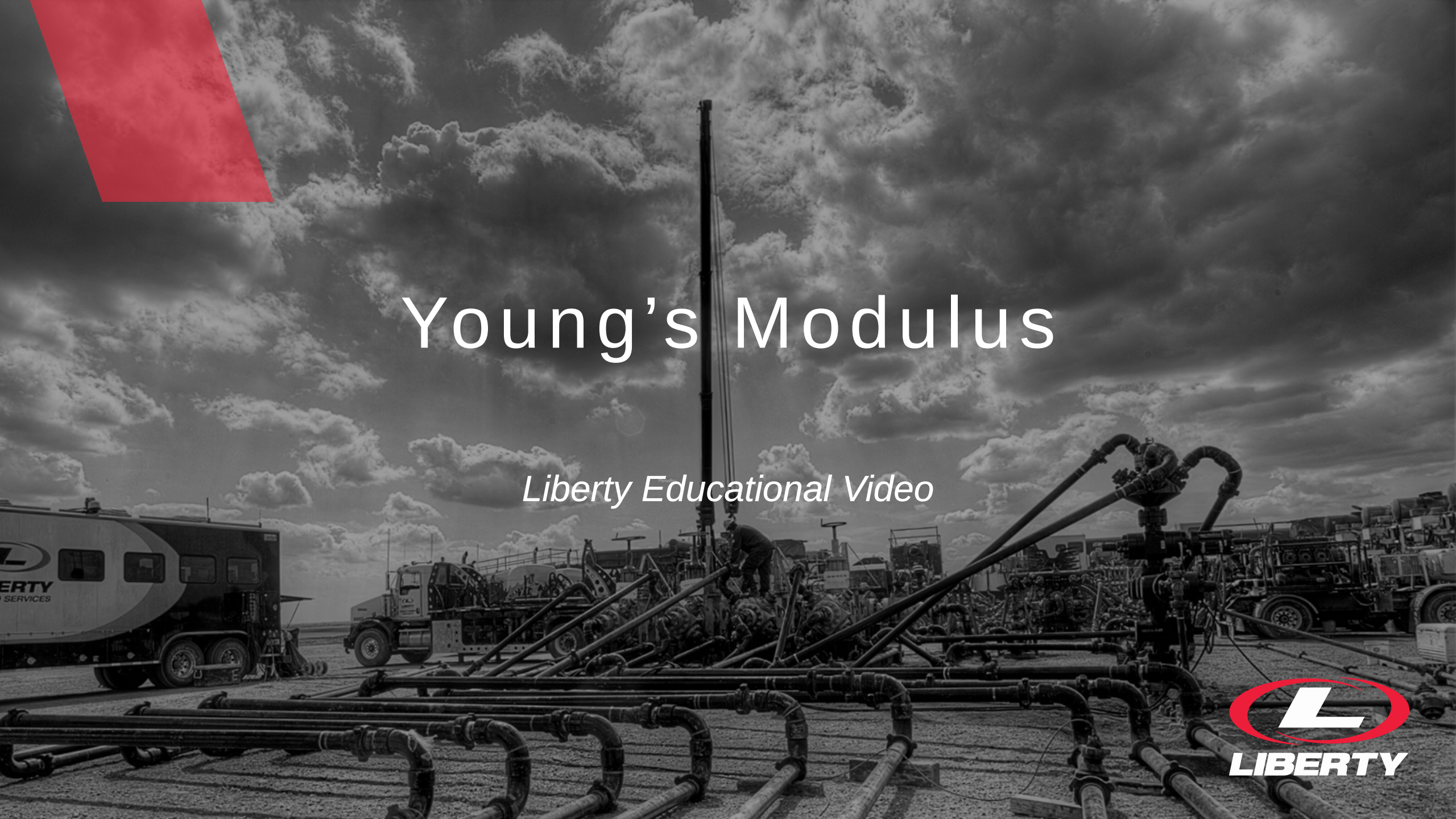
Young’s Modulus
Liberty Educational Video
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Critical Concepts – Young's Modulus

Deformation Of A Core Sample Due To Uniaxial Compressive Load

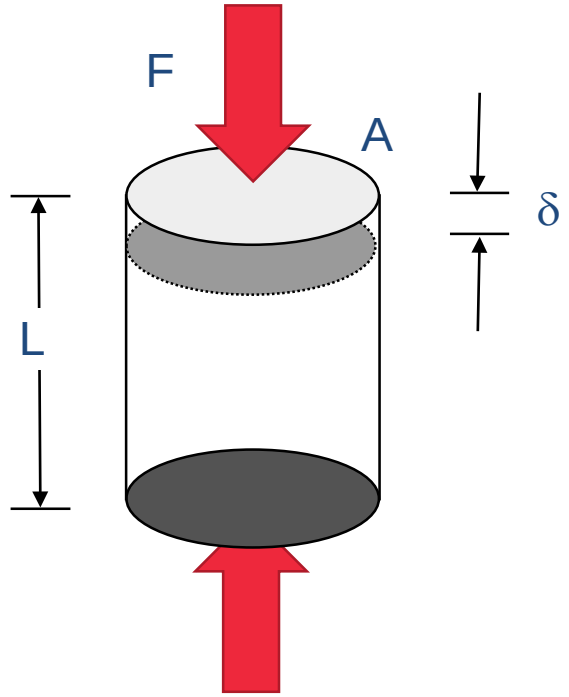
What we apply:

σ = Stress = F/A

What we measure:

ε = Strain = δ/L

E = Young's modulus = σ/ε



Modulus: "stress per unit strain"

Or: stress needed to fully collapse the sample, assuming linearity

The Young's Modulus of Jell-O

Simple Young's Modulus Math

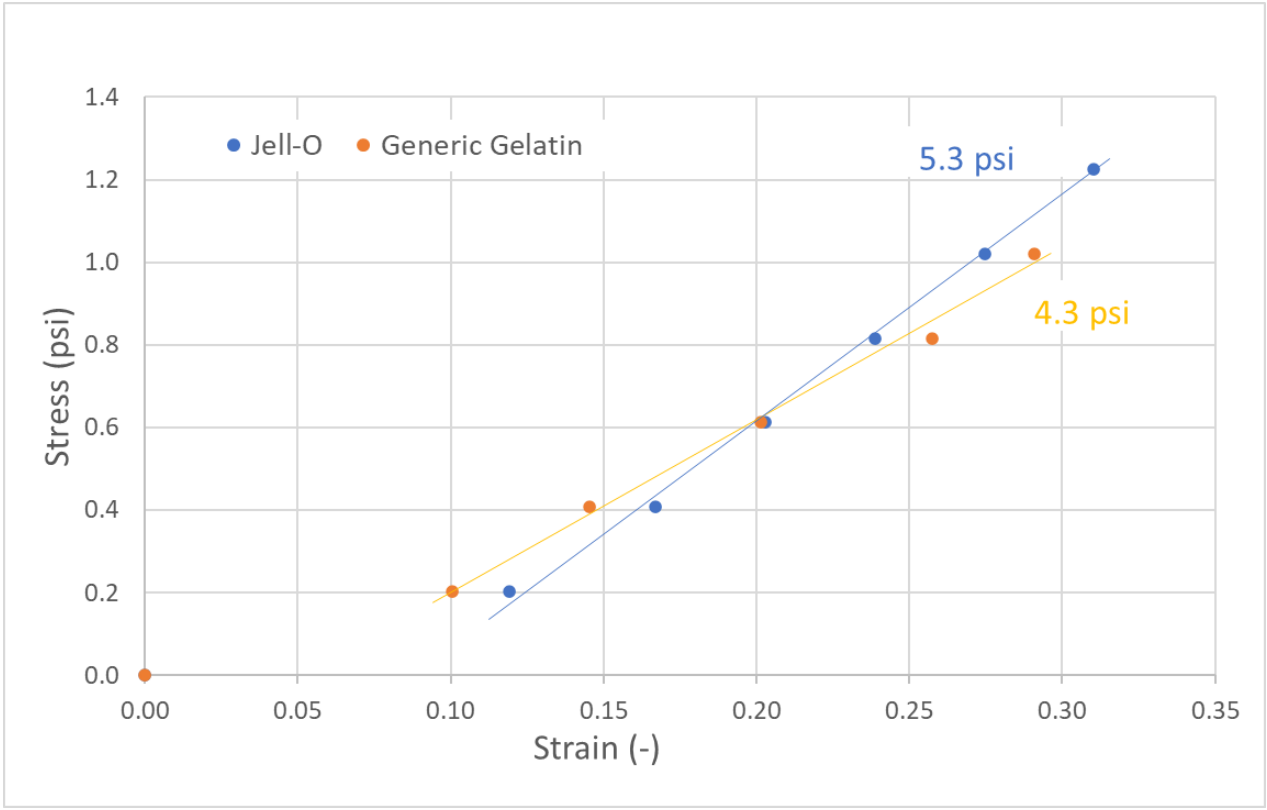
What we apply:

Stress = 6 lbs / 5 in^2 = 1.2 psi

What we measure:

Strain = 1-1/8 in / 3.5 in = 0.31

Young's Modulus = 1.2 psi / 0.31 = 3.9 psi



Multiple measurements can be graphed in a stress – strain diagram. The slope of the line past initial loading of the sample represents the Young's Modulus

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