

Stress

Copper wires of different thickness will all break under different loads.

Thicker wires will break under greater load.

Measure the diameter and calculate the cross sectional area in m^2 .

Measure the force required to break the wire.

$$\text{stress} = \frac{\text{force}}{\text{cross-sectional area}}$$

N m^{-2} Pa m^2

Symbol for stress, $\rightarrow \sigma = \frac{F}{A}$

Use the formula to calculate the breaking stress of copper.

All samples of pure copper should break at the same **STRESS**, regardless of their cross-sectional area.

Breaking stress is a property of materials rather than objects - in the same way than density is a property of materials and mass is a property of objects.