

Chart 6: Fracture toughness, K_{Ic} , against Young's modulus, E

The chart displays both the fracture toughness, K_{Ic} , and (as contours) the toughness, $G_{Ic} \approx K_{Ic}^2/E$; and it allows criteria for stress and displacement-limited failure criteria (K_{Ic} and K_{Ic}/E) to be compared. The guide lines show the loci of points for which

- $K_{Ic}^2/E = C$ (lines of constant toughness, G_c ; energy-limited failure)
- $K_{Ic}/E = C$ (guideline for displacement-limited brittle failure)

The values of the constant C increases as the lines are displaced upwards and to the left. Tough materials lie towards the upper left corner, brittle materials towards the bottom right.

