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The following table shows how to convert between elastic constants (Young's modulus, Poisson's ratio, Lamé's constants) in different formats:

Known Elastic Constants	E	ν	μ	κ	λ
Shear modulus μ , Bulk modulus κ	$\frac{9\kappa\mu}{3\kappa+\mu}$	$\frac{3\kappa-2\mu}{6\kappa+2\mu}$	μ	κ	$\frac{3\kappa-2\mu}{3}$
Young's modulus E , Poisson's ratio ν	E	ν	$\frac{E}{2(1+\nu)}$	$\frac{E}{3(1-2\nu)}$	$\frac{E\nu}{(1+\nu)(1-2\nu)}$
Young's modulus E , Shear modulus μ	E	$\frac{E-2\mu}{2\mu}$	μ	$\frac{E\mu}{3(3\mu-E)}$	$\frac{\mu(E-2\mu)}{3\mu-E}$
Young's modulus E , Bulk modulus κ	E	$\frac{3\kappa-E}{6\kappa}$	$\frac{3\kappa E}{9\kappa-E}$	κ	$\frac{3\kappa(3\kappa-E)}{9\kappa-E}$
Shear modulus μ , Lamé's constant λ	$\frac{\mu(3\lambda+2\mu)}{\lambda+\mu}$	$\frac{\lambda}{2(\lambda+\mu)}$	μ	$\frac{3\lambda+2\mu}{3}$	λ

Neo-Hookean parameters in ABAQUS

ABAQUS requires that the neo-Hookean material parameters be expressed in terms of C10 and D1. These parameters can be obtained from the shear modulus (μ) and the bulk modulus (κ) by the following expressions:

$$C10 = \mu / 2$$

$$D1 = 2 / \kappa$$