A frequent source of anisotropy of elastic materials is the presence of reinforcing fibres which display strong stiffening properties accompanying their stretching.
Numerical modeling of a nearly inextensible material by the FEM may cause unstable or oscilatory solutions.

A remedy is introducing a separate approximation of the auxiliary variables: stretches along fibres and the corresponding tensions.

The mixed formulation with adequate approximation in the finite element spaces allows one for effective modeling of the nearly inextensible solid.