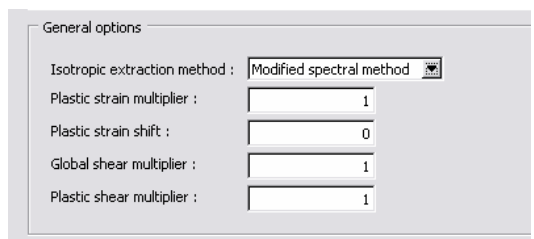
Isotropic extraction method

This parameter defines the method used to extract the isotropic part of a stiffness tensor. Three methods are supported by DIGIMAT:

- **General method,**
- **Spectral method,**
- **Modified Spectral method**

The default method is set to "General". However this method can, in some cases, lead to inaccurate or wrong results. In such cases, the "Spectral method" or the "Modified spectral method" must be used.

The **"modified spectral method"** required the definition of four parameters in order to fully defined the tangent shear modulus:



- k_p : the plastic strain multiplier
- k_s : the plastic strain shift
- k_μ : the global shear multiplier
- k_t : the plastic shear multiplier

$$\mu_t = k_\mu \, \mu_{elastic} \left(1 - \frac{3 k_t \, \mu_{elastic}}{3\mu_{elastic} + A\left(R'(k_p p + k_s), g_v(f)\right)} \right)$$

where - ***R'=dR/dP*** denote the derivative of the hardening law with respect to the accumulated plastic strain.

- ***A*** is a function of ***R'*** and the creep function g_v

The default value of these coefficients are respectively : **1.0**, **0.0**, **1.0** and **1.0**. Let us note that with these values, the "spectral method" and the "modified spectral method" has the same definition of the tangent shear modulus.

An illustration of the effect of each parameters on the macroscopic response of an elasto-plastic matrix reinforced with non spherical elastic inclusions is given below.

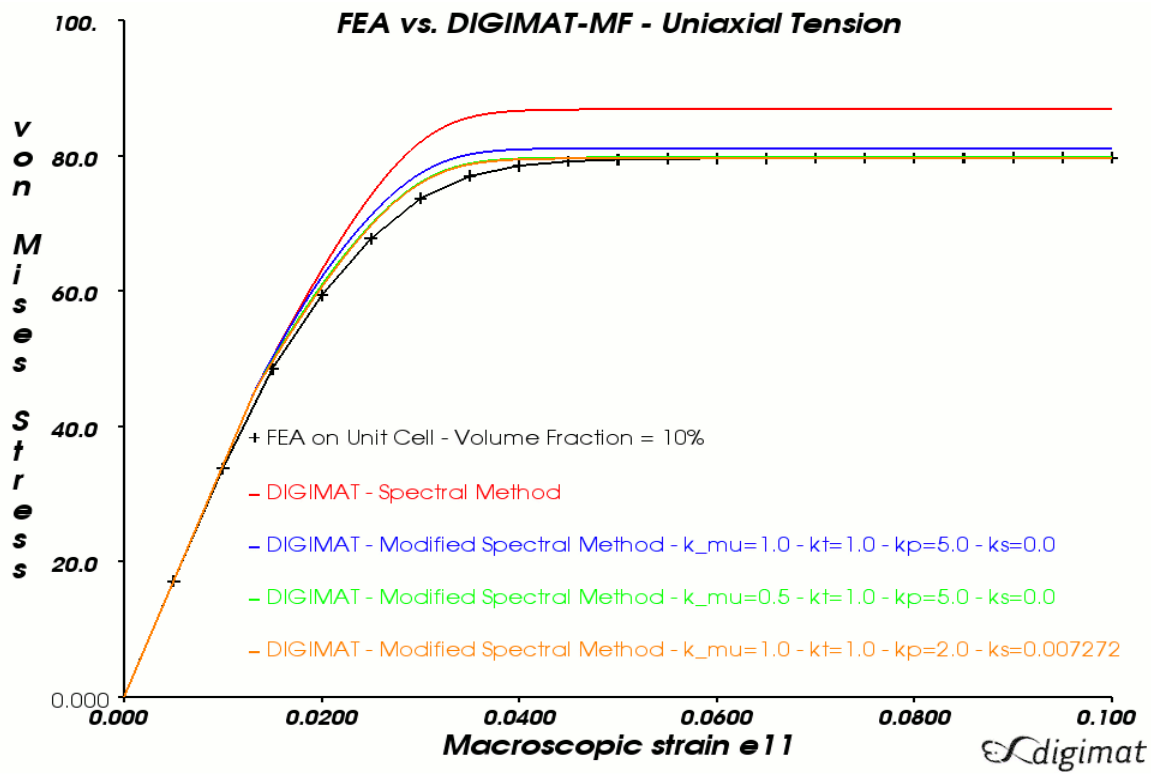


Figure 1: sEq - e11 curve