MATERIAL COMMANDS : An Overview

The units associated with the material property information must be consistent with those used to describe the geometry of the body being analyzed and with the units of the applied loads and/or displacements.

For all MATERIAL idealizations, the type of material is indicated by the appropriate keywords (e.g., ELASTIC ISOTROPIC, INTERFACE STANDARD, etc.). The material NUMBER serves as an identifier in the assignment of particular material descriptions to groups of elements described using the ELEMENT commands. Associated with the DESCRIPTION keyword is a string that is used to describe the material. This is included solely for the benefit of the analyst; the associated string is printed in the “echo” of the MATERIAL data.

The following material idealizations are currently available in APES:

- Isotropic, Orthotropic, Anisotropic elastic
- Incompressible elastic (“Herrmann type” material [1])
- Poroelastic Anisotropic [6,7]
- Elastoplastic-viscoplastic bounding surface model for isotropic cohesive soils [9]
- Quasi-linear (hyperbolic) elastic for axisymmetric (“triaxial”) idealizations [2-5]
- “Standard” material idealization for use with zero-thickness interface elements
- Time-independent and time-dependent material idealizations suitable for geosynthetic reinforcement
- Ramberg-Osgood material idealization [10] (for use with line elements)
- Variable bulk modulus, quasi-linear elastic [8]
- Viscoelastic (for use with line elements)
References


