

ZZZZ342 - Validation of ELAS_HYPER in small disturbances

Summary:

This test validates the law of behavior ELAS_HYPER :

- compared to an elastic linear calculation (law of Hooke) on the assumption of the small disturbances (HP);
- by checking, into compressible, the equivalence of the formulation according to whether one informs the Poisson's ratio ν or compressibility modulates it K ;
- by comparing the total formulation (by default formulation) and incremental (formulation imposed by the presence of an initial state) of the law of behavior.

A cube on side 1 mm is embedded at its base and subjected to a loading of uniform pressure equal to 1 Mpa at the other end. The material is Néo-Hookéen ($C10=300\text{ Mpa}$, $\nu=0,25$).

The reference solution is of type AUTRE_ASTER and it is obtained by an elastic linear calculation with the law of Hooke for an equivalent Young modulus on the assumption of the small disturbances ($E=1500\text{ Mpa}$).

The results got in displacements as in constraints are in very good agreement with the reference.

This test comprises three modelings:

- modeling a: D_PLAN
- modeling b: C_PLAN
- modeling C: 3D

This documentation is voluntarily brief.