

PERFE03 – Not regression of the calculation of type aggregate of platform PERFECT

Summary:

This test validates the orders used by the module AGGREGATE of the platform PERFECT which makes it possible to simulate the effects of irradiation on the component of engines. One is interested here in steel of tank.

One considers an element of volume to which one applies an imposed deformation. The material consists of an aggregate comprising 300 single-crystal grains, in a representative ground volume.

Modeling A tests the constraints and average deformations obtained for a deformation imposed of 0.18% .

Kinematic Pas d' work hardening: MONO_CINE1 $d = 0$.

1.3 Boundary conditions and loadings

Face $z=0$: $DZ = 0$
Face $y=0$: $DY = 0$
Face $x=0$: $DX = 0$
Face $z=1$: $DZ = f(t)$

The loading $f(t)$ is increasing linearly of 0 for $t=0$ with 0.1 for $t=100s$.

To decrease the computing time, this one is led until $t=1.8s$, that is to say a deformation imposed of 0.18%, in 3 increments.

2 Reference solution

2.1 Method of calculating

The goal of this test is to check the validity of command file used in PERFECT. The tests are thus of not-regression.

The values tested are the average constraints and average deformations according to Z at moment 1.8.

3 Modeling A

3.1 Characteristics of the grid

Many nodes: 8.
Modeling 3D : 1 element of quadratic volume HEXA8.

3.2 Results

The second calculation (clarifies, MONO_VISC1 , MONO_ISOT1 , MONO_CINE1)

Identification	Reference	Aster	% difference
σ_{xx} of SIEF_ELGA	-	375,365	Not regression

4 Summary of the results

Pas de particular comment, tests carried out being of nonregression.