

PERFE03 – Non regression of the computation of type aggregate of Summarized platform

PERFECT:

This test validates the commands used by the modulus 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 a volume element to which one applies an imposed strain. The material consists of an aggregate comprising 300 single-crystal grains, in a representative ground volume.

The modelization A tests the stresses and average strains obtained for a strain imposed of 0.18% .

No kinematic 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 $t=100$ s .

To decrease the computing time, this one is led until $t=1.8$ s , that is to say a strain 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 the command file used in PERFECT. The tests are thus of NON-regression.

The values tested are the average constraints and average strains following Z at time 1.8.

3 Modelization A

3.1 Characteristic of the mesh

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

3.2 Results

the Second computation (clarifies, MONO_VISC1 , MONO_ISOT1 , MONO_CINE1)

Identification	Reference	Aster	% difference
σ_{xx} of SIEF_ELGA	-	375.365	Non regression

4 Summary of the results

No particular comment, tests carried out being of non regression.