

## Operator POST\_BEREMIN

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### 1 Goal

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The object of this order is to calculate, in postprocessing of a calculation of nonlinear mechanics elastoplastic, the probability of cleavage resulting from the model from Beremin as well as the constraint DE Weibull.

This order turns over one `table` and a file `MED` (optional).

The macro-order functions in `D_PLAN`, `C_PLAN`, `AXIS` or in `3D`.

The model of Beremin is described in detail in the reference material [R7.02.04].

Advices of use of this model are given in documentation [U2.05.08].

The case test of use of `POST_BEREMIN` is available in [V1.01.163].

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## 2 Syntax

```
[table] = POST_BEREMIN(  
  ♦ RESULT      = resumeca,                                [result]  
  
  ♦ GROUP_MA    = group_ma,                                [group_ma]  
  
  ♦ DEFORMATION = / 'SMALL',                                [DEFECT]  
                  / 'PETIT_REAC',  
                  / 'GDEF_LOG',  
  
  ♦ FILTRE_SIGM = / 'SIGM_ELGA',                            [DEFECT]  
                  / 'SIGM_ELMOY',  
  
  ◇ COEF_MULT   = / coeff,                                  [R]  
                  / 1. ,                                    [DEFECT]  
  
  ◇ UNIT        = unit                                     [I]  
  
)
```

## 3 Operands

### 3.1 Operand RESULT

◆ RESULT = resumeca, [result]

Indicate the result of the mechanical calculation for which one calculates the sizes of Beremin (forced of Weibull and probability of rupture).

### 3.2 Operand GROUP\_MA

◆ GROUP\_MA = group\_ma, [group\_ma]

Indicate LE field of the model on which the calculation of the sizes of Beremin will be carried out. Let us note that only one group of mesh is authorized.

### 3.3 Operand DEFORMATION

◆ DEFORMATION = / 'SMALL', [DEFECT]  
/ 'PETIT\_REAC',  
/ 'GDEF\_LOG',

DefinedT assumptions for the calculation of the deformations. For more precise details on the formalisms of deformations, to see the paragraph DEFORMATION of [U4.51.11].

- In small deformations (DEFORMATION = 'PETIT' or DEFORMATION = 'PETIT\_REAC'), calculation is carried out starting from the stress field of Cauchy SIEF\_ELGA
- EN great deformations logarithmic curves (DEFORMATION = GDEF\_LOG), calculation is carried out starting from the specific stress field  $T$  near to the constraint of Kirchhoff defined in space logarithmic curve [R5.03.24].

*Notice 1 : in great multiplicative deformations (DEFORMATION = 'SIMO\_MIEHE'), macRO-order is not available.*

*Notice 2 : to minimize the effects related to the incompressibility (voluminal blocking in pressure in particular) it is from now on possible to carry out postprocessings of breaking process of cleavage with the elements incompressible (GRAD\_INCO) with POST\_BEREMIN.*

### 3.4 Operand FILTRE\_SIGM

◆ FILTRE\_SIGM = / 'SIGM\_ELGA', [DEFECT]

The elementary fields of the constraints are used in their representations at the points of Gauss.

/ 'SIGM\_ELMOY',

The elementary fields of the constraints are determined starting from the simple arithmetic mean of the constraints in each mesh.

*Note: for POST\_ELEM, Lbe elementary fields of the constraints are given from the average balanced by the weights of Gauss.*

## 3.5 Operand COEF\_MULT

◇ COEF\_MULT = \ coeff., [R]  
                  \ 1, [DEFECT]

The value by default of this coefficient is 1.0.

The following table, in which the thickness is noted  $e$ , indicates typical values of the coefficient  $C$  according to the type of symmetry:

- **simple symmetry** : the symmetry plane of the grid passes by the plan of the defect and the defect is entirely with a grid,
- **double symmetry** : the symmetry plane of the grid also passes by the plan of the defect but only one half of the defect is with a grid.

	3D and 3D SI	AXIS and AXIS SI	D_PLAN and D_PLAN SI	C_PLAN
SIMPLE	2	$4\pi$	2nd	2nd
DOUBLE	4	without object	without object	without object
NOT	1	$2\pi$	E	E

Table 3.5-1: Values of the multiplying coefficient symmetry-thickness

## 3.6 Operand UNIT

◇ UNIT = unit [I]

Logical number of unit which allows to print a file of result of postprocessing in format MED. It acts stress fields of Weibull (SIGM\_ELGA) recovered at the points of Gauss.

## 4 Example of use

One will find examples in the elementary case test zzzz163a. Advices of use of this model are given in documentation [U2.05.08].