

Operator IMPR_OAR

1 Drank

To write result mechanical computation ASTER with the format "data base OAR".

This procedure writes with the XML format (in conformity with DTD OAR) the relative information with:

- a component,
- a model finite element (MEF),
- a pipework.

The processing of the MEF, although envisaged, is not established yet.

OAR (Fast Tool for Analysis) is a computer system making it possible to carry out in a fast and sure way mechanical analyzes of harmfulness of indications in the controlled areas in operating of the important materials for safety and/or the availability, by treating the aspects starting, propagation and stability.

2 Syntax

```
IMPR_OAR (
  # Choice of the type of result
  ◆ /TYPE_CALC = ' COMPOSANT'
  ◆DIAMETRE=diam [R]
  ◆ORIGINE=/ "INTERN"
[DEFAULT] / "EXTERNAL"
  ◇COEFF_U=/1.0
[DEFAULT] /Coeff [R]
  ◆ANGLE_C=/0.0
[DEFAULT] /Psi [R]
  ◇REVET=/ "NON"
[DEFAULT] /"YES"
  ◇/RESU_MECA=_F (
    ◆NUM_CHAR=num_char [I]
    ◆TYPE=/ "FX"
    /"FY"
    /"FZ"
    /"MX"
    /"MY"
    /"MZ"
    /"PRE"
    ◆TABLE=tab1
[array]
    # If REVET = "YES"
    ◇TABLE_S=tab2 [array]
    ),
  ◇/RESU_THER=_F (
    ◆NUM_TRAN=num_tran [I]
    ◆TABLE_T=tabt1
[array]
    ◆TABLE_TEMP=tabt2
[array]
    # If REVET = "YES"
    ◇TABLE_S=tabt3
[array]
    ◇TABLE_ST=tabt4
[array]
    ),
    ◆/TYPE_CALC=' MEF'
    ◆DIAMETRE=diam [R]
    ◆ORIGINE=/INTERN
[DEFAULT] /EXTERNE
  ◇COEFF_U=/1.0
[DEFAULT]
```

Warning : The translation process used on this website is a "Machine Translation". It may be imprecise and inaccurate in whole or in part and is provided as a convenience.

```

                                /Coeff
                                [R]
◇RESU_MECA=_F (
  ◆AZI=azimut
[1_R]
  ◆TABLE_T=tab1 [array]
  ◆TABLE_F=tab2 [array]
  ◆TABLE_P=tab3 [array]
  ◆TABLE_CA=tab4
[array]
),
◇RESU_THER=_F (
[1_R]
  ◆AZI=azimut
  ◆NUM_CHAR=num_char [I]
  ◆TABLE_T=tabt1
[array]
  ◆TABLE_TI=tabt2
[array]
),
  ◆/TYPE_CALC=' TUYAUTERIE'
◆RESU_MECA=_F (
  ◆NUM_CHAR=num_char [I]
  ◆TABLE=tabl
[array]
  ◆MAILLAGE = my [mesh]
),
◇UNITE=/38
[DEFAULT]
  /unite [I]
◇AJOUT=/ "NON"
[DEFAULT]
  / "YES"
```

3 Operands

3.1 Operand **TYPE_CALC**

◆ /TYPE_CALC = "COMPOSANT"

Construction of a tree structure XML according to the component DTD

/TYPE_CALC = "MEF"

Construction of a tree structure XML according to DTD MEF

/TYPE_CALC = "PIPEWORK"

Construction of a tree structure XML according to the DTD pipework

3.2 Operand if **TYPE_CALC = "COMPOSANT"**

◆ MAILLAGE = mail

Name of the concept mesh of mesh type .

3.2.1 Key word **DIAMETRE**

◆ DIAMETRE = diam

Diameter of the component.

3.2.2 Key word **ORIGINE**

◆ ORIGINE =/ "EXTERNAL"
" INTERN"/

Indication of the position of the origin of the cut line. By default the value is: "INTERN"

3.2.3 Operand **COEFF_U**

◆ COEFF_U = coeff

multiplying Coefficient for the unit of length (default value 1.0).

3.2.4 Operand **ANGLE_C**

◆ ANGLE_C = psi

Angle of the cut line compared to the wall expressed in degrees (default value 0.0).

3.2.5 Operand **REJET**

◆ REJET = "NON"
/ "OUI"

Indicates the presence of a coating on the structure (default value "NON").

3.2.6 Key word RESU_MECA

3.2.6.1 Operand NUM_CHAR

◆ NUM_CHAR = numchar

Number of the loading.

3.2.6.2 Operand TYPE

◆ TYPE = "FX"
/ "FY"
/ "FZ"
/ "MX"
/ "MY"
/ Standard "MZ"

" of loading.

3.2.6.3 Operand COUNTS

◆ ARRAY = array

Counts of the stresses for structure.

3.2.6.4 Operand TABLE_S

◇ TABLE_S = table_s

Array of the stresses in the coating (if REVET=' OUI ').

3.2.7 Key word RESU_THER

3.2.7.1 Operand NUM_TRAN

◆ NUM_TRAN = num

Number of the thermal transient.

3.2.7.2 Operand TABLE_T

◆ TABLE_T = table_t

Array of the thermomechanical stresses per time.

3.2.7.3 Operand TABLE_TEMP

◆ TABLE_TEMP = table_temp

Array of the temperatures.

3.2.7.4 Operand TABLE_S

◇ TABLE_S = table_s

Array of the thermomechanical stresses in the coating (if REVET=' OUI ').

3.2.7.5 Operand TABLE_ST

◇ TABLE_ST = table_st

Array of the temperatures in the coating (if coating).

3.3 Operand if `TYPE_CALC = "MEF"`

This key word is not treated in the current version of `IMPR_OAR`. The use of this key word led to an alarm indicating that this function is not established.
Syntax associated with the key word is not checked.

3.4 Operand if `TYPE_CALC = "PIPEWORK"`

3.4.1 Key word `RESU_MECA`

3.4.1.1 Operand `NUM_CHAR`

◆ `NUM_CHAR = numchar`

Number of the loading.

3.4.1.2 Operand `COUNTS`

◆ `ARRAY = array`

Counts of the stresses for structure.

3.4.1.3 Operand `MAILLAGE`

◆ `MAILLAGE = mail`

Mesh used for computation.

3.5 Operand `UNITE`

◇ `UNITE = unit`

logical Number of unit of the output file (default value 38).

3.6 Operand `AJOUT`

◇ `AJOUT = "YES"
/ "NON"`

Indicates that the writing must be done following the file defined by `UNITE`. By default, the value is `"NON"`.

4 Example of use

4.1 COMPOSANT

To resulting from computation the user produces the arrays necessary to the generation of file OAR using the macro MACR_LIGN_COUPE). The macro MACR_LIGN_COUPE must be called as many times as necessary to obtain the arrays used by IMPR_OAR :

- 1) A cut for one result mechanical on a component without coating,
- 2) Two cuts for one result mechanical on a component with coating.
- 3) Two cuts (one on the thermomechanical results, for the thermal results) for one result thermomechanical on a component without coating.
- 4) Four cuts (two thermomechanical results – structure and coating and two thermal results – idem) for one result thermomechanical for a component with coating.

```
# 1. Cut coating
# 1.1 Mechanics
T_MEC2_R=MACR_LIGN_COUPE (RESULTAT=RESUT,
                           NOM_CHAM=' SIEF_NOEU',
                           MODELE=MADMECA,
                           LIGN_COUPE=_F (NB_POINTS=3,
                                           COOR_ORIG= (0.18, 0.1, 0.0,)),
                                           COOR_EXTR= (0.185, 0.1, 0.0,)),);

# 1.2 Thermal
T_THE2_R = MACR_LIGN_COUPE (RESULTAT=TEMPE,
                           NOM_CHAM=' TEMP',
                           MODELE=MODETH,
                           LIGN_COUPE=_F (NB_POINTS=3,
                                           COOR_ORIG= (0.18, 0.1, 0.0,)),
                                           COOR_EXTR= (0.185, 0.1, 0.0,)),);

# 2. Cut structure
# 2.1 Mechanics
T_MEC2_S=MACR_LIGN_COUPE (RESULTAT=RESUT,
                           NOM_CHAM=' SIEF_NOEU',
                           MODELE=MADMECA,
                           LIGN_COUPE=_F (NB_POINTS=9,
                                           COOR_ORIG= (0.185, 0.1, 0.0,)),
                                           COOR_EXTR= (0.200, 0.1, 0.0,)),);

# 2.2 Thermal
T_THE2_S = MACR_LIGN_COUPE (RESULTAT=TEMPE,
                           NOM_CHAM=' TEMP',
                           MODELE=MODETH,
                           LIGN_COUPE=_F (NB_POINTS=9,
                                           COOR_ORIG= (0.185, 0.1, 0.0,)),
                                           COOR_EXTR= (0.200, 0.1, 0.0,)),);

IMPR_OAR (TYPE_CALC = "COMPOSANT",
          DIAMETRE=0.2,
          RESU_THER=_F (NUM_TRAN=1,
                       TABLE_T=T_MEC2_S,
                       TABLE_TEMP=T_THE2_S,
                       TABLE_S=T_MEC2_R,
                       TABLE_ST=T_THE2_R,)),
          AJOUT=' OUI' );
```

NB: It is important to note that in the presence of a coating, the cut of structure and the cut of the coating must share a common point. The absence of point of this common point produces an error.

4.2 PIPEWORK

With resulting from computation the user produces the arrays necessary to the generation of file OAR using the macro POST_RELEVE_T).

```
tab24 = POST_RELEVE_T (ACTION = _F (
                                INTITULE = "test",
                                NOEUD = ("N1" , "N5" , "N10", "N15",
"N20", "N25", "N30", "N35", "N40", "N45", "N50", "N55", "N60", "N65",
"N70", "N75", "N80", "N85", "N90", "N95", "N100", "N105", "N110", "N115",
"N120", "N125", "N130", "N135", "N140", "N145", "N150", "N155", "N160",
"N165", "N170", "N175", "N180", "N185", "N190", "N195", "N200", "N205",
"N210", "N215", "N220", "N225", "N230", "N235", "N240", "N245", "N250",
"N255", "N260", "N265", "N270", "N275", "N280", "N285", "N290", "N295",
"N300", "N305", "N310", "N312", "N315", "N320", "N325", "N330", "N335",
"N340", "N345", "N350", "N355", "N360",),
                                TOUT = "OUI",
                                RESULTAT = RESU24,
                                NOM_CHAM = "EFGE_ELNO",
                                TOUT_ORDRE = "OUI",
                                TOUT_CMP=' OUI',
                                OPERATION=' EXTRACTION',),);

IMPR_OAR (TYPE_CALC = "PIPEWORK",
          RESU_MECA=_F (NUM_CHAR=1,
                        TABLE=tab24,
                        MAILLAGE=MA,),);
```