

**PARTS CONTAINING PLASTIC ELEMENTS  
REACTION TO HEAT  
IN A NON-RADIANT DRY OVEN**

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No use restriction

*This is a translation, the French original shall be used in all cases of litigation**Date of translation : 29/06/1998***FOREWORD***This document is in technical conformity with RENAULT méthode d'essai No. 1234.**It must not be modified without prior consultation with RENAULT.**It is in conformity with the agreement reached between the Normalisation Services of PEUGEOT S.A. and RENAULT in MARCH 1984.***1. OBJECT AND FIELD OF APPLICATION**

The object of this méthode is to assess the reaction of thermoplastic parts to a prolonged exposure to dry heat from the point of view of shrinkage, deformation and modification in appearance.

This test must only be carried out for the inspection of moulding stresses.

It applies to all parts containing plastic elements fitted onto vehicles such as facia, steering wheel, radiator grille, lamps, door opening handles, ...

**2. PRINCIPLE**

The method consists of placing the parts to be examined in a ventilated oven, previously raised to the selected temperature, for a determined time.

The temperature and the duration of the test are set in the documents.

**3. EQUIPMENT****3.1 OVEN**

including a forced pulsed air device allowing uniform temperature to be obtained in all the space available and the selected temperature to be retained throughout the duration of the test.

The oven must include a regulating device such that the temperature does not vary by more than  $\pm 2^{\circ}\text{C}$  around the chosen value during the test and by more than  $\pm 1^{\circ}\text{C}$  from one extremity of the part to the other.

The internal dimensions of the oven must be such that the part tested does not touch, under any circumstances, the walls or the floor of the oven and does not disturb the air circulation.

**3.2 GRILLE**

placed at mid-height in the oven so as to prevent contact of the parts with the oven floor,

**3.3 CALIBRATED THERMOMETERS**

graduated in  $0,5^{\circ}\text{C}$ , placed in Erlenmeyer flasks filled with vaseline or thermocouples connected to a temperature recording device.

**3.4 FIXTURE FOR FIXING THE PART TO BE EXAMINED**

in conditions as close as possible to the fixing method used on the vehicle.

**3.5 EQUIPMENT REQUIRED FOR MAKING VISIBLE MARKS ON THE PART TO BE EXAMINED**

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### 3.6 SUITABLE MEASURING INSTRUMENTS

such as : rules, marking tools, vernier calipers, beam compass and others.

## 4. METHOD OF OPERATION

- Fix the part to be examined on the fixture, in the conditions stipulated in the documents or, failing that, in known conditions of use (in particular, tightening torques for fixing screws).
- Draw, on the part, in the main directions (length and width for example), reference marks at a given distance apart, measured to the nearest 0,1% using a suitable instrument, with the part previously conditioned at  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for a minimum of 2 hours.
- Measure also to the nearest 1/2 mm, using the most suitable instruments depending on the shape of the part, the dimensions which play an important role in its strength in use (for example on a fascia : dimensions of the opening for the speedometer, ashtray housing, ...).

**Note :** *If the possible deformation of a part between its fixing points needs to be assessed, measure the corresponding dimension with a beam compass.*

- Set the temperature of the oven to the value defined in the documents.  
Wait for the temperature to stabilise before introducing the part to be examined into the oven.
- When the part to be examined includes several areas subjected, in use, to various temperatures, subject the part successively to a test at each of these temperatures, if possible, spacing these out in steps of  $10^{\circ}\text{C}$  in an ascending order.  
In this case, it is also advisable to carry out a test on another part, taking it directly to the maximum temperature.
- Place the part in the oven in suitable conditions without subjecting it to stresses not specified in its function. In the case of parts passed through in free condition, position them in such a way as to reduce the stresses linked to their weight. Observe any defects.
- The duration of the test is as specified in the documents.
- Remove the part from the oven and allow to return to ambient temperature.
- Observe its appearance, then measure the dimensions again between the reference marks and the dimensions of the part.

**Note :**

- *For a post shrinkage measurement, the minimum time between moulding of the part and the test must be 48 hours.*
- *If the expansion of a part when hot needs to be measured, the test must be carried out on a part already subjected to a post shrinkage treatment at the same temperature.*

## 5. EXPRESSION OF RESULTS

- Calculate the dimensional variations of the part, in the various directions, as a percentage of the measured initial lengths, with elongations allocated the sign + and shrinkages the sign -.
- Calculate the variations in millimetres in other measured dimensions.
- Note, in addition, modifications in appearance (such as grain, colour, gloss...) and the deformations observed.

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## 6. TEST REPORT

As well as the results obtained, the test report must indicate :

- the reference to this méthode,
- the duration and temperature of the test,
- the designation of the part, the drawing number and the name of the supplier,
- details of the material,
- the reference marks indicating the date of manufacture,
- the specific conditions of the test if these differ from the conditions indicated in the documents and the position of the part in the oven.

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## 7. RECORDS AND REFERENCE DOCUMENTS

### 7.1. RECORDS

#### 7.1.1. CREATION

- OR : 01/10/1977 – CREATION OF THE NORME.

#### 7.1.2. SUBJECT OF THE MODIFICATION

- A: 01/02/1985 – COMPLETE REWRITE OF THE NORME
- B: 01/08/1997 – INTRODUCED INTO IDEM (*French only*)

### 7.2 REFERENCE DOCUMENTS

#### 7.2.1. PSA DOCUMENTS

##### 7.2.1.1 Normes

##### 7.2.1.2. Others

#### 7.2.2. EXTERNAL DOCUMENTS

### 7.3. EQUIVALENT TO :

REN 1234

### 7.4. CONFORMS TO :

### 7.5. KEY-WORDS