

**LIQUID OR PASTE PRODUCTS
DENSITY
(PYCNOMETER METHOD)**

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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 : 02/09/1998***FOREWORD**

*This document is equivalent to the RENAULT document D55 1018.
It must not be modified without prior consultation with the Normalisation Department of this group.
It is in conformity with the agreement reached between this Group and PSA PEUGEOT CITROËN in October 1997.*

1. OBJECT AND FIELD OF APPLICATION

The object of this méthode is to set the conditions for determining, by means of a pycnometer, the density of liquid or paste products (adhesives, sealants), of thick glues (pigmented or not), of surfacers and paints.

2. PRINCIPLE

The mass of a known volume of product is measured at a determined temperature during the test.

3. EQUIPMENT**3.1. METAL PYCNOMETER**

preferably of 100 ml capacity with a lid fitted with an overflow orifice and counterweight.

3.2. THERMOMETER

precision S T L/0,2 - 15/45 in conformity with norme NF B 35-502.

3.3. BALANCE ACCURATE TO ONE CENTIGRAM**3.4. STIRRER****3.5. THERMOSTATICALLY CONTROLLED ENCLOSURE**

at 23°C ± 2°C and 50% ± 5% relative humidity.

3.6. SUITABLE SOLVENT**3.7. DISTILLED WATER****4. PREPARATION OF THE SAMPLE**

The product to be tested must be kept in a thermostatically controlled enclosure (3.5).
The sample, after being thoroughly homogenised with the stirrer (3.4) must be free from air bubbles, skins or foreign bodies in suspension.

5. METHOD OF OPERATION

5.1. PREPARATION OF THE PYCNOMETER

The pycnometer must remain a minimum of two hours in an enclosure (3.5).
Clean the pycnometer (3.1) with a suitable solvent (3.6). Leave to dry until the difference between two consecutive weighings, 15 minutes apart, does not exceed 0,02 g.

5.2. CALIBRATION OF THE PYCNOMETER

The calibration of the pycnometer (3.1) must be carried out by means of distilled water (3.7) following the normal procedure. The distilled water density at 23°C is accepted as being 0,9976 g/ml.

5.3. TESTS

The normal temperature of the test is 23°C ± 2°C.

- Weigh the pycnometer (3.1) fitted with its lid, using the balance (3.3) : let M_1 be the mass obtained expressed in grams (g).
- Homogenise the product with the stirrer (3.4), check the temperature with the thermometer (3.2), fill the pycnometer (3.1) avoiding forming air pockets by firming it down.
- Fit the lid ensuring that the excess product can flow through the overflow orifice. Remove this excess carefully (in the case of liquid products, place a protective screen between the overflow orifice and the operator).
- Weight the pycnometer (3.1) filled with the product, using the balance (3.3) : let M_2 be the mass obtained, expressed in grams (g).

6. EXPRESSION OF RESULTS

The density "MV", expressed in grams per cubic centimetre (g/cm^3) shall be calculated using the following formula :

$$MV = \frac{M_2 - M_1}{V}$$

where V is the volume of liquid contained in the pycnometer, expressed in cubic centimetre (cm^3), if M_1 and M_2 masses are expressed in grams (g).

7. TEST REPORT

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

- the reference to this méthode,
- the reference of the product tested and the name of the supplier,
- the pycnometer capacity,
- the operating details not specified in the method as well as any possible incidents likely to have affected the results.

8. RECORDS AND REFERENCE DOCUMENTS

8.1. RECORDS

8.1.1. CREATION

OR : 01/05/1979 – CREATION OF THE NORME

8.1.2. SUBJECT OF THE MODIFICATION

- A : 17/12/1996 – INTRODUCED INTO IDEM (*French only*).
- B : 21/11/1997 – CORRECTION TO THE INTRODUCTION INTO IDEM AND MODIFICATIONS TO THE UPDATE WITH RENAULT.

8.2. REFERENCE DOCUMENTS

8.2.1. PSA DOCUMENTS

8.2.1.1 Normes

8.2.1.2. Others

8.2.2. EXTERNAL DOCUMENTS

NFB35-502(05/1960)

8.3. EQUIVALENT TO :

REN1018

8.4. CONFORMS TO :

8.5. KEY-WORDS