

**MATERIALS AND PARTS IN POLYMER
PASSENGER COMPARTMENT INNER AND OUTER
COLOUR FASTNESS TO RUBBING**

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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 : 02/03/2000***FOREWORD**

*This document is equivalent to the RENAULT document D45 1010.
It must not be modified without prior consultation with the Normalisation Services of this Group.
It is in conformity with the agreement reached between this Group and PSA PEUGEOT CITROËN in October 1998.*

1. OBJECT AND FIELD OF APPLICATION

The object of this méthode is to determine the colour fastness to rubbing on all materials and parts in polymer located in the passenger compartment inner and outer.

This document is based on Norme NF EN ISO 105-X12.

2. PRINCIPLE

The specimens to be tested are rubbed with a non coloured reference textile dry or moistened with certain liquids.

Colour transfer onto non coloured reference textiles and deterioration of the test specimen are assessed on the grey scales.

3. EQUIPMENT AND REAGENTS**3.1 CROCKMETER APPARATUS**

(see appendix), comprising of a cylindrical contact, 16 mm \pm 0,1 mm diameter subjected to a load of 900 g \pm 30 g. This contact produces reciprocating movements of 100 mm \pm 10 mm amplitude, at the frequency of 1 cycle per second.

3.2 NON COLOURED REFERENCE TEXTILE

in cotton lawn fabric, without sizing or any dressing with a surface mass of 125 g/m² \pm 10 g/m² (see note below). Cut out this textile into approximately 50 mm squares.

3.3 GREY SCALES

for assessing deterioration on test specimens and colour transfer onto non coloured reference textiles. These scales are defined by normes NF EN 20105-A02 and NF EN 20105-A03. Use preferably 9 degrees scales.

Note: *The textile (3.2.) and the grey scales (3.3) may be obtained through ADSOL, 37 rue de Neuilly, 92110 CLICHY CEDEX.*

3.4 BAIZE

100% white wool of approximate surface mass 250 g/m² and 1 mm thick, cut into discs of approximately 16 mm diameter (for information: manufactured by LE FEUTRE at 08210 MOUZON).

3.5 PIPETTE OR LABORATORY SYRINGE

graduated, of 0,5 ml capacity.

3.6. SOAPY WATER

with 0,5% household soap and 0,5% sodium carbonate.

3.7. ETHYL ALCOHOL

95% in volume.

3.8. TECHNICAL HEPTANE**3.9. PETROL F OR C, ACID AND BASIC PERSPIRATIONS**

(see méthode d'essai D47 1025) according to the details in the documents.

3.10. DISTILLED WATER**3.11. MASKS**

Masks are used to assess the contrast in colour over the various aged test specimens. The masks are made of a neutral grey card in which apertures of 40 mm x 20 mm are made; the neutral grey colour is approximatively the colour of the lightest band on the grey scale for the assessment of the deterioration (3.3.) (for example CHARTE card neutral grey card from KODAK).

4. PREPARATION OF TEST SPECIMENS

- Take from the materials to be tested one specimen per test of approximately 50 mm x 140 mm.
- For small dimensional parts from which it is impossible to take test specimens to the dimensions defined above, if possible, carry out the test on specimens taken from slabs or flat samples in the same material, grain and colour as the part concerned.

5. METHOD OF OPERATION

In all cases, insert a baize disc (3.4) between the contact on the apparatus (3.1) and the textile (3.2). This disc must be changed for each new test and for each liquid.

5.1. DRY RUBBING

- Carry out the test with the apparatus (3.1).
- Fix a textile square (3.2) to the cylindrical contact on the apparatus (3.1).
- Carry out 10 reciprocating movements on the specimen to be tested.

If necessary it is possible to modify the number of movements. In this case, the number of reciprocating movements must be indicated in the documents.

5.2. RUBBING WITH A TEXTILE IMPREGNATED WITH A LIQUID

- Carry out the same test as in paragraph 5.1, on a new test specimen by wetting the textile (3.2) at its centre with 0.5 ml of reagent (3.6.) or (3.7.) or (3.8.) or (3.9.) or (3.10.), using the pipette (3.5.), according to the details given in the documents.
- After rubbing, leave the textile and the test specimen to dry at ambient temperature.

In the case of a volatile reagent (3.7.), (3.8.), etc., it is desirable to impregnate the textile (3.2.) and the baize disc (3.4.) after their positioning on the apparatus (3.1.).

6. EXPRESSION OF RESULTS

Assess the deterioration on the test specimens and the colour transfers onto non coloured reference textiles according to the grey scales (3.3.) in the lighting conditions defined in méthode d'essai D15 1343. To assess the differences in colour, cover the test specimens and standards with masks (3.11.) in order to compare identical surfaces and reduce the effect of neighbouring colours.

In the case of materials on which the rubbing would have shown a deterioration (gloss, whitening or mattness), examine if this deterioration is irreversible by wiping manually by means of the dry textile (3.2.) or the textile soaked with water (3.10.).

Take into account any permanent deterioration.

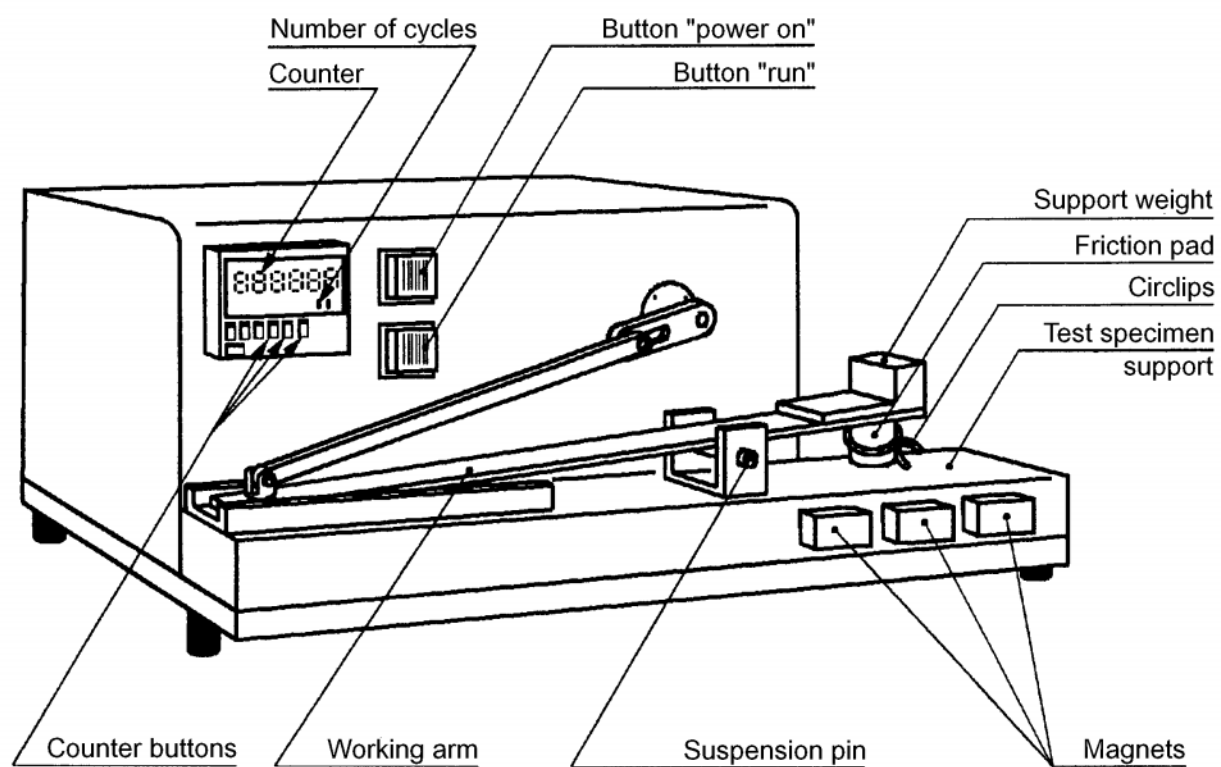
7. TEST REPORT

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 operating details not specified in the method as well as any possible incidents likely to have affected the results.

APPENDIX

CROCKMETER APPARATUS (3.1)



8. RECORDS AND REFERENCE DOCUMENTS

8.1. RECORDS

8.1.1. CREATION

- OR : 01/10/1978 – CREATION OF THE NORME.

8.1.2. SUBJECT OF THE MODIFICATION

- D : 20/01/1999 : § 3.11. – MASKS ADDED.
- C : 09/06/1997 : INTRODUCED INTO IDEM (*French only*).

8.2. REFERENCE DOCUMENTS

8.2.1. PSA DOCUMENTS

8.2.1.1. Normes

D47 1025

D15 1343

8.2.1.2. Others

8.2.2. EXTERNAL DOCUMENTS

NF EN ISO 105-X12, NF EN 20105-A02, NF EN20105-A03

8.3. EQUIVALENT TO :

REN D45 1010

8.4. CONFORMS TO :

8.5. KEY-WORDS