

**PAINT COATINGS
RUN LIMIT ASSESSMENT
OF PRIMER SURFACERS AND CLEARCOATS**

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Restrictions described in the normeThis Méthode d'Essai **CANCELS** and **REPLACES** document MXP_PEI00_0022*This is a translation, the French original shall be used in all cases of litigation**Date of translation : 07/11/2001***1. OBJECT AND FIELD OF APPLICATION**

The object of this méthode is to determine the maximum thickness to be applied to a primer surfacer or a finish clearcoat with no runs showing.

It applies to primer surfacers and finish clearcoats.

2. PRINCIPLE

Primer surfacer assessment : the primer surfacer to be assessed is deposited onto a defined substrate as per Appendix 2, coated with the cataphoresis thickness specified in the range as per Appendix 1.

Clearcoat assessment : the clearcoat to be assessed is deposited onto a defined substrate as per Appendix 2, coated with the base unstoved thickness specified in the range, as per Appendix 1.

The operation consists of producing several plates of different thickness of primer surfacer and clearcoat to be tested covering the thickness range to be studied (from 40 µm to 70 µm), or of applying a graded thickness onto one plate only.

Observe after stoving, according to the conditions of Appendix 1, then measure the clearcoat thickness at which the first runs appear.

3. EQUIPMENT**3.1. RUN PLATES,**

in steel sheet of 500 mm x 300 mm, 0,8 mm thick, with a double longitudinal fold and a row of holes in its upper part, according to Appendix 2, coated with cataphoresis for the primer surfacer assessment and uncoated for the clearcoat assessment.

3.2. APPLICATION EQUIPMENT

defined in Appendix 1.

3.3. TWO VENTILATED OVENS

minimum working volume 250 l, regulated to the nearest 2° C within the temperature range of 20° C to 250 ° C in order to obtain the stoving profiles defined in Appendix 1.

3.4. THICKNESS MEASURING EQUIPMENT

according to méthode d'essai D26 5316.

3.5. CHRONOMETER

3.6. VISCOMETRIC CUP AND RELATED EQUIPMENT

to adjust the dilution for the application of tested materials according to méthodes d'essai D55 1016 and D55 1339.

3.7. APPLICATION BOOTH

with forced air.

3.8. ADHESIVE PAPER

25 mm wide.

4. METHOD OF OPERATION

4.1. PRIMER SURFACER ASSESSMENT

All the applications are carried out in a vertical position according to one of the following procedures :

Application onto single thickness plates :

- Setting of the conveyor speed : 4 m/min.
- Setting of the spraying jet :
 - On the steel sheet of 500 mm x 300 mm, set the spray of the product to be tested so as to obtain perfect primer surfacer thickness homogeneity at 40 µm in 2 layers. After the setting has been carried out, the application parameters will be frozen (shaping air, rotating speed of bell,...).
- Application onto test plates :
 - On a run test plate, stick an adhesive paper band in the longitudinal direction, 5mm above the holes.
 - In the range of the relevant site, as per Appendix 1, apply the primer surfacer to the bell at the setting conditions previously defined.
 - Leave to dry for 5 minutes, in a vertical position.
 - Maintaining the same position, carry out the stoving in an oven at the specific conditions set by the relevant site.
 - After cooling, remove the adhesive paper and examine the plate.
 - The run limit thickness is reached when an incipient run appears at the holes.
- If the run limit is exceeded or not reached, modify the primer surfacer thickness deposited onto another plate. To achieve this, the only parameter to be modified is the conveyor speed using the following formula :

$$Vc_1 = Vc_0 \times \text{thickness}_0 / \text{thickness}_1$$

In which :

Vc_0 = conveyor speed at the measured thickness

thickness_0 = measured thickness

Vc_1 = conveyor speed to obtain the desired thickness

thickness_1 = desired thickness

Note : *Peeling, materialised by a form of curtaining (see description of the defect in norme B15 5020) may also be observed at the fold; by measuring the thickness around the curtaining, the thickness of the primer surfacer which causes it may be assessed, usually near the run limit thickness. However, this measurement is less accurate and the value obtained is often higher and must be disregarded.*

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Grading application :

On a run test plate coated with cataphoresis, stick an adhesive paper band in the longitudinal direction, 5 mm above the holes.

- Apply a graded primer surfacer to the bell, from 30 µm to 70 µm.
- Leave to dry for 5 minutes in vertical position.
- Maintaining the same position, stove in an oven at the specific conditions of the relevant site.
- Leave to cool at ambient temperature, then remove the adhesive paper.
- Mark the hole showing the incipient run, according to norme B15 5020 for the definition of the defect.
- Measure the thickness of the deposited primer surfacer above the hole. The value measured corresponds to the run limit thickness.

4.2. CLEARCOAT ASSESSMENT

All the applications are carried out in vertical position according to one of the following procedures :

Application onto single thickness plates :

- Setting of the conveyor speed : 4 m/min.
- Setting of the spraying jet :
 - On the steel sheet of 500 mm x 300 mm, set the spray of the product to be tested so as to obtain perfect primer surfacer thickness homogeneity at 40 µm in 2 layers. After the setting has been carried out, the application parameters will be frozen (shaping air, rotating speed of bell,...).
- Application onto test plates :
 - On a run test plate, stick an adhesive paper band in the longitudinal direction, 5mm above the holes.
 - Deposit a base coat at the nominal thickness.
 - Remove the adhesive paper.
 - In the range of the relevant site, as per Appendix 1, apply the clearcoat at the setting conditions previously defined.
 - Leave to dry for 5 minutes, in a vertical position.
 - Maintaining the same position, carry out the stoving, in an oven at the specific conditions set by the relevant site.
 - After cooling, examine the plate.
 - The run limit thickness is reached when an incipient run appears at the holes.
 - If the run limit is exceeded or not reached, modify the clearcoat thickness deposited onto another plate. To achieve this, the only parameter to be modified is the conveyor speed using the following formula :

$$Vc_1 = Vc_0 \times \text{thickness}_0 / \text{thickness}_1$$

In which :

Vc_0 = conveyor speed at the measured thickness

thickness_0 = measured thickness

Vc_1 = conveyor speed to obtain the desired thickness

thickness_1 = desired thickness

Note :

Peeling, materialised by a form of curtaining (see description of the defect in norme B15 5020) may also be observed at the fold; by measuring the thickness around the curtaining, the thickness of the clearcoat which causes it may be assessed, usually near the run limit thickness. However, this measurement is less accurate and the value obtained is often higher and must be disregarded.

The ranges defined in Appendix 1 correspond to the relevant sites through the Exploring Request issued by the Product Management (DPMP and DPMC) : pilot site for a vehicle project, cross sites in the case of Model Years. These are issued from the DMOV-PEI-0349-REFE procedure.

Grading application :

On a run test plate, stick an adhesive paper band in the longitudinal direction, 5 mm above the holes.

- Deposit a base coat at nominal thickness.
- Remove the adhesive paper.
- Apply a graded clearcoat from 30 µm to 70 µm.
- Leave to dry for 5 minutes in a vertical position.
- Pre-stove the plate for 5 minutes at 80°C in a vertical position in one oven.
- Maintaining the same position, stove in a second oven at the specific conditions of the relevant site.
- Leave to cool at ambient temperature.
- Mark the hole showing the incipient run, according to norme B15 5020 for the definition of the defect.
- Measure the thickness of the deposited clearcoat above the hole. The value measured corresponds to the run limit thickness.

5. EXPRESSION OF RESULTS

Indicate the result of the observation of the plates and the thickness of primer surfacer or clearcoat at which the run or possibly peeling appears.

6. TEST REPORT

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

- the reference to this méthode,
- the thicknesses deposited,
- the equipment and application parameters,
- the stoving conditions used,
- the references of the materials used,
- the operating details not specified in the method as well as any possible incidents likely to have affected the results.

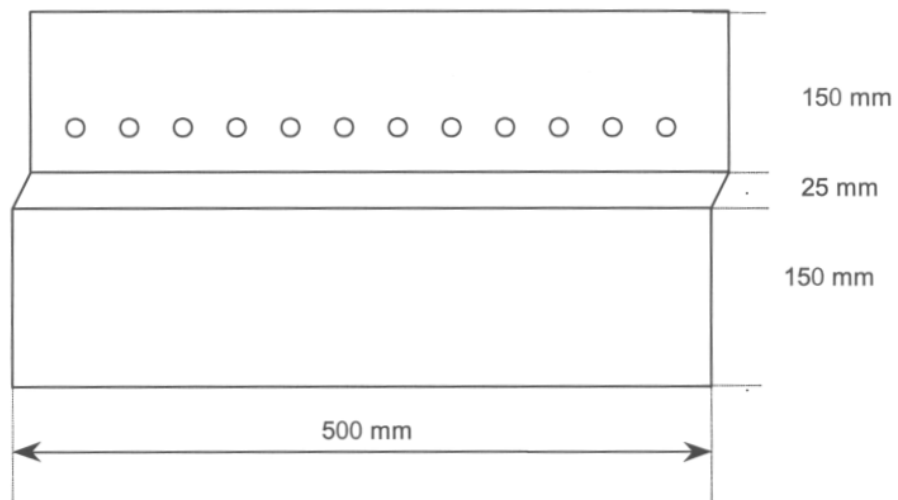
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Appendix 1

DEFINITION OF PARAMETERS TO BE USED FOR EACH RANGE

Appendix identical to that of Méthode d'Essai D25 5470

PITTING LIMIT ASSESSMENT OF FINISHING PAINTS

Appendix 2**DIAGRAM OF THE TEST PLATE**

7. RECORDS AND REFERENCE DOCUMENTS

7.1. RECORDS

7.1.1. CREATION

- OR : 29/06/2001 – CREATION OF THE METHODE D'ESSAI.

7.1.2. SUBJECT OF THE MODIFICATION

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7.2. REFERENCE DOCUMENTS

7.2.1. PSA DOCUMENTS

7.2.1.1 Normes

B15 5020	COATINGS OF PAINT - DEFINITION OF SPECIFIC TERMS
D26 5316	COATINGS – ORGANIC ON MAGNETIC OR NON-MAGNETIC METAL SUPPORT – NON DESTRUCTIVE MEASUREMENT OF THE THICKNESS
D55 1016	ADHESIVES, PAINTS AND SIMILAR PREPARATIONS – CONSISTENCY (CUP METHOD)
D55 1339	PAINTS AND SIMILAR PREPARATIONS – RATE OF DILUTION

7.2.1.2. Others

DMOV-PEI-0349-REFE DESCRIPTION OF THE PRIMER SURFACER AND FINISHING PAINT PROCESSES FOR THE PSA GROUP PAINTSHOPS.

7.2.2. EXTERNAL DOCUMENTS

7.3. EQUIVALENT TO :

7.4. CONFORMS TO :

7.5. KEY-WORDS