

PAINT COATINGS BLISTERING FROM HUMIDITY

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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 : 18/03/2003*

1. OBJECT AND FIELD OF APPLICATION

The object of this method is to determine the resistance of a paint film to the phenomenon of blistering from humidity.

2. PRINCIPLE

To determine the density of blistering after a determined period of exposure to condensing humidity, as well as the residual adherence of the coating according to méthode d'essai D25 1075.

3. EQUIPMENT AND REAGENTS

3.1. TANK IN RIGID POLYVINYL CHLORIDE

with cover forming an angle of 15° in relation to the horizontal plane and equipped with a thermostatically controlled device, see appendix 1.

3.2. GRADUATED THERMOMETER

from 0 to 100 °C, to the nearest 0,5 °C.

3.3. LINT FREE CLOTH OR ABSORBENT PAPER

3.4. WATERPROOF ADHESIVE TAPE

with polyethylene backing.

3.5. DE-IONISED WATER

with resistivity greater than 200 000 Ω /cm.

4. TEST SPECIMENS

Plates, or flat parts, of minimum dimensions 85 x 165 mm (thickness 0,8 mm \pm 0,1 mm if metal supports) covered with the product(s) to be tested.

5. CONDITIONING OF TEST SPECIMENS

The test specimens are conditioned at 23 °C \pm 2 °C and 50 % \pm 5 % relative humidity for :

- 7 days in the case of air drying paints,
- 24 hours in the case of oven drying paints.

6. METHOD OF OPERATION

Operate in premises with a temperature of $23\text{ °C} \pm 2\text{ °C}$.

- After the assembly (3.1) has been carried out, fill the tank with de-ionised water (3.5) up to a height of 100 mm.
- Bring the water in the tank to a temperature of $60\text{ °C} \pm 1\text{ °C}$, check with the thermometer (3.2).
- Arrange the paint test specimens in the windows provided on the cover, fixing their lower part to the cover by the means of waterproof adhesive tape (3.4).
The unoccupied windows must be blanked out ; avoid lifting the paint test specimens too often in order to reduce to a minimum disturbances caused by the opening of the device.
- Top up the level to 100 mm with water at 60 °C every day to replace losses due to evaporation.
- Examine the test specimens after the exposure time specified in the documents.
To carry out the examination, wipe the test specimens quickly, without rubbing them, with the soft cloth (3.3).

After 1 hour at $23\text{ °C} \pm 2\text{ °C}$ and $50\% \pm 5\%$ relative humidity, carry out :

- the grading of the blistering, loss of gloss and change of colour according to the indications in § 7.0,
- the adhesion test in conformity with méthode d'essai D25 1075.

7. EXPRESSION OF RESULTS

7.1. GRADING OF BLISTERING, LOSS OF GLOSS AND CHANGE OF COLOUR

For blistering, gradings are carried out using the set of 16 photographs (originating from the norme ASTM D714) shown in appendix 2, according to the following scale :

0 – Change lower than F8 (micro-blistering visible only under a determined incidence is allowed) or very slight loss of gloss or slight change of colour reversible by slight rubbing with the cloth (3.3) less than 6 hours after the end of the test.

1 – Size F8 or loss of gloss or non-reversible colour change 6 hours after the end of the test.

2 - Sizes M8 and F6.

3 – Sizes and densities other than above.

4 – Deterioration greater than D2.

The expression of the result must include simultaneously the grading and the reference of the photograph materialising the noted change

.

Example : Grading 3 (M4).

Note :

- Do not take into consideration a localised change if the relative surface concerned is less than 5 % of the total surface of if a mishap (finger marks) can be easily detected.

- Disregard any loss of gloss or change of colour for any paint not having an appearance function.

7.2. GRADING OF ADHESION

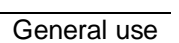
Carried out in conformity with méthode d'essai D25 1075, paragraph 6.0.

8. TEST REPORT

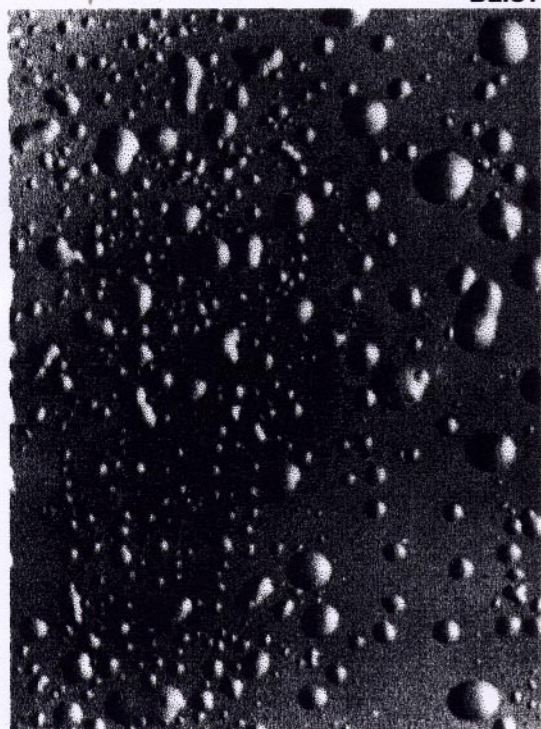
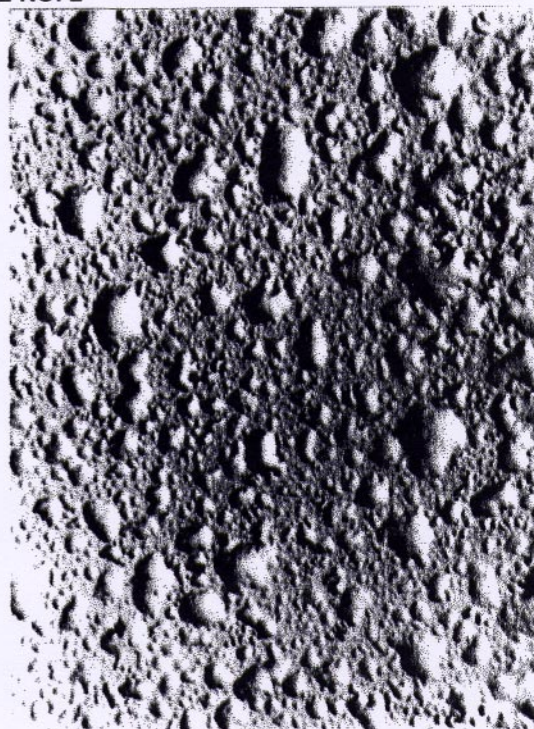
As well as the results obtained, the test report must indicate :

- the reference of this méthode,
- the operating details not specified in the méthode as well as any possible incidents likely to have affected results.

PRINCIPLE DIAGRAM OF THE TANK (3.1)

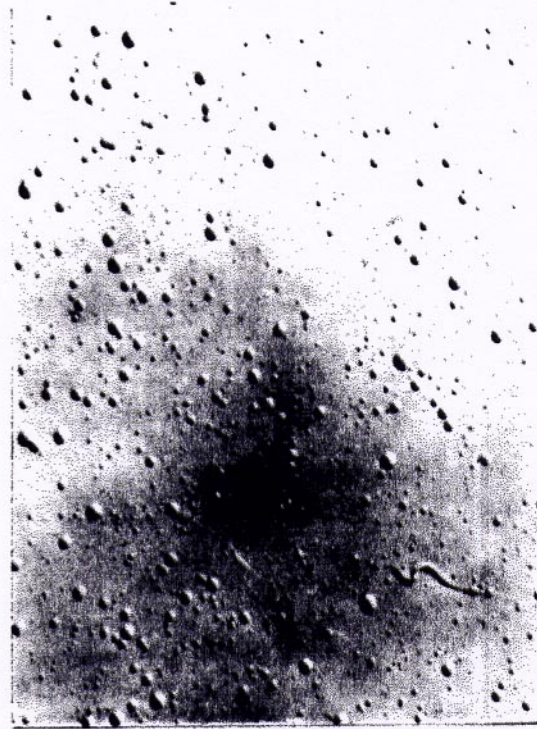
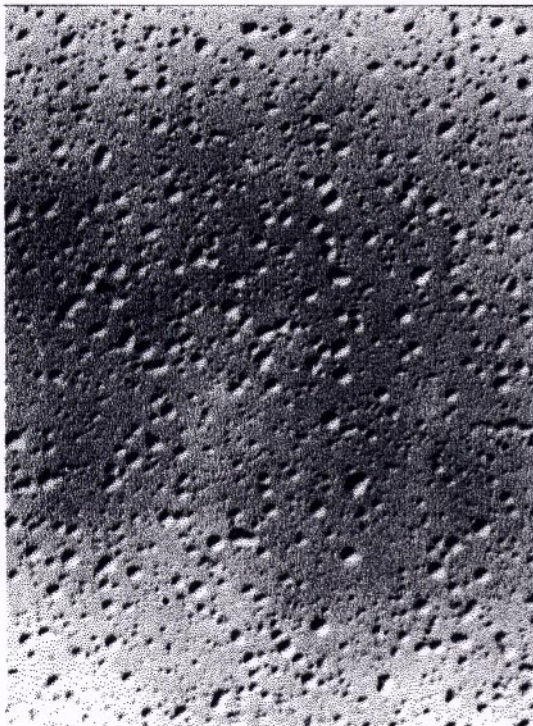
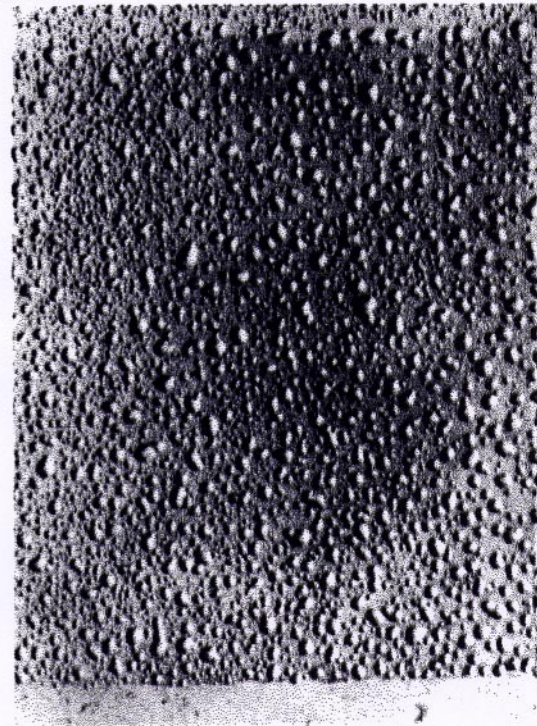


Appendix 2 (1/4)

**FEW
(F)****MEDIUM
(M)****BLISTER SIZE NO. 2****MEDIUM DENSE
(MD)****DENSE
(D)****BLISTER SIZE NO. 2**

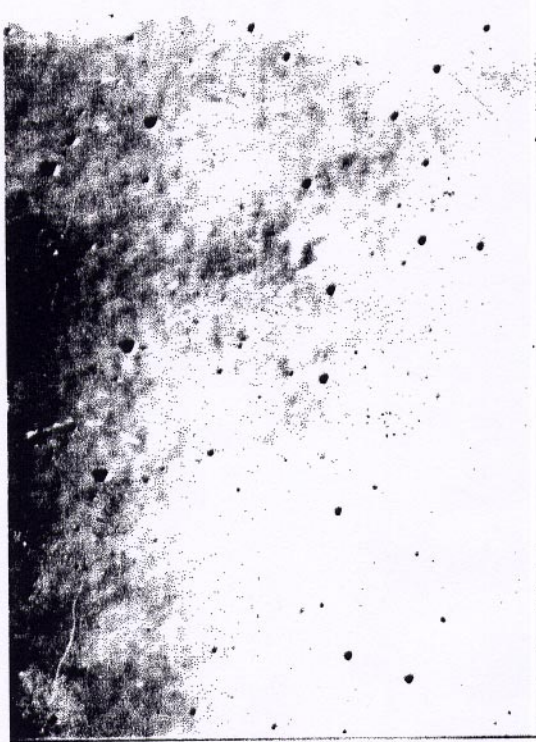
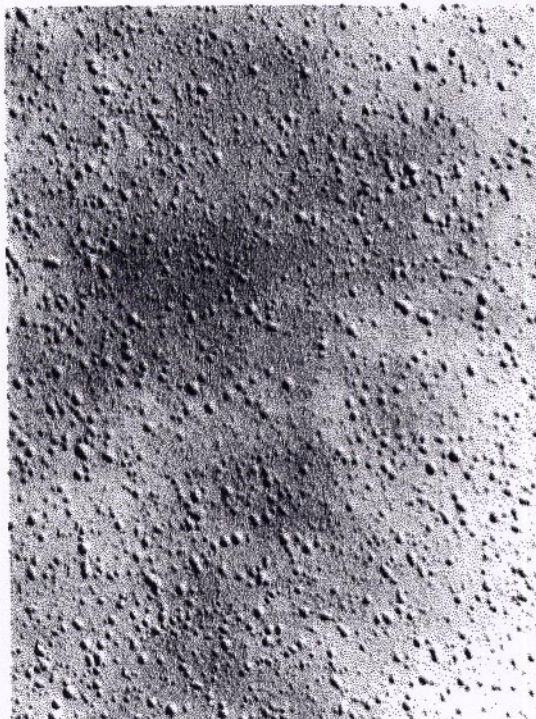
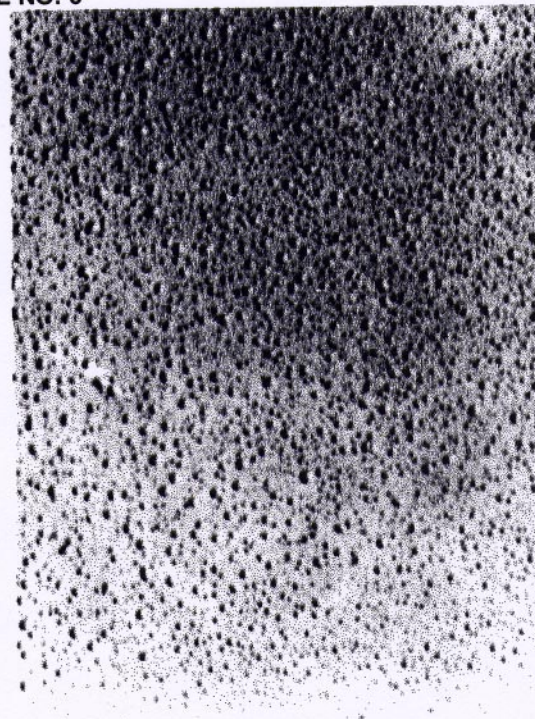
Photographic prints of these pictures are reserved for departmental use and will be issued on request.

Annexe 2 (2/4)

**FEW
(F)****MEDIUM
(M)****BLISTER SIZE NO. 4****MEDIUM DENSE
(MD)****DENSE
(D)****BLISTER SIZE NO. 4**

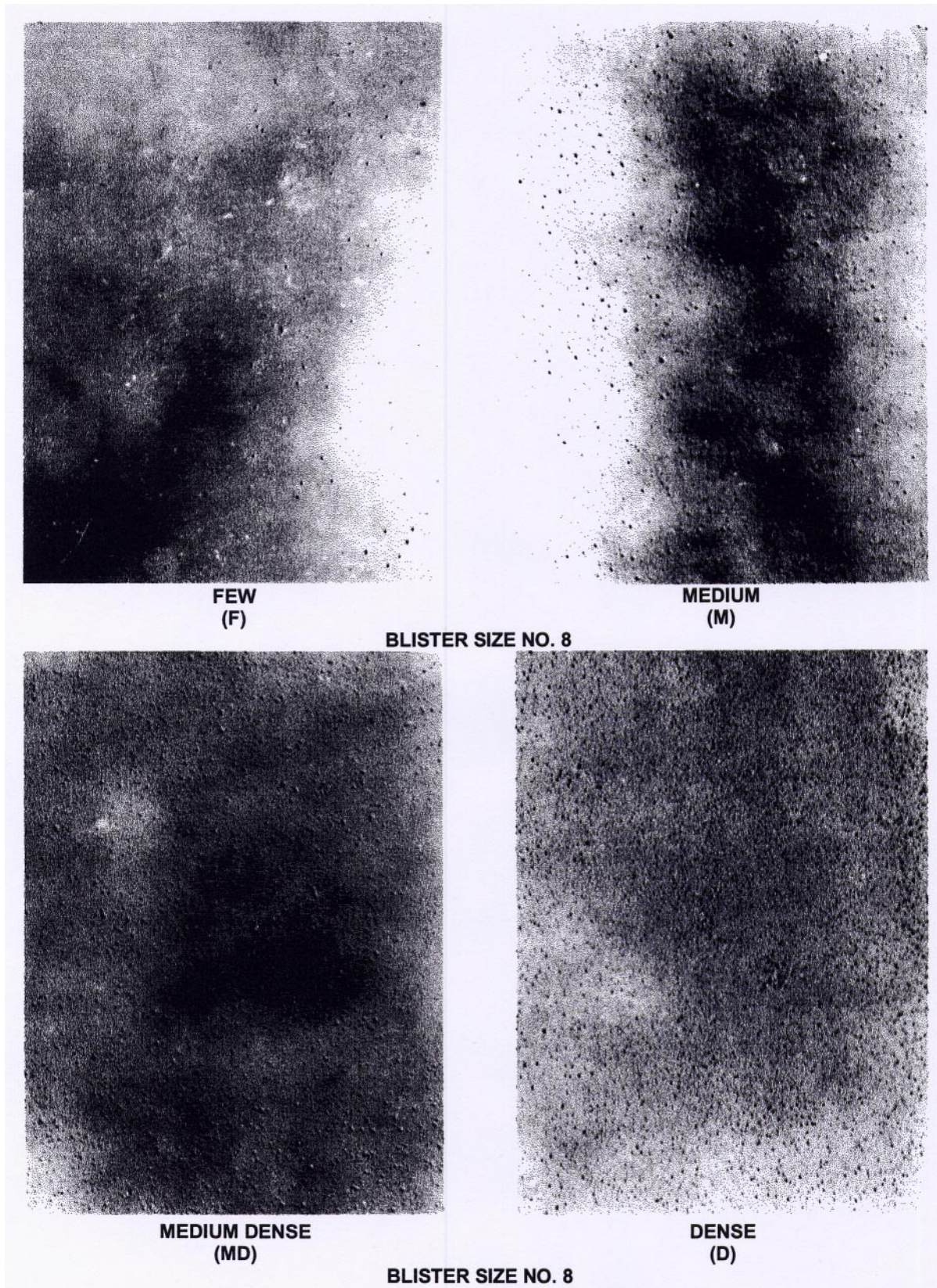
Photographic prints of these pictures are reserved for departmental use and will be issued on request.

Annexe 2 (3/4)

**FEW
(F)****MEDIUM
(M)****BLISTER SIZE NO. 6****MEDIUM DENSE
(MD)****DENSE
(D)****BLISTER SIZE NO. 6**

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Annexe 2 (4/4)



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9. RECORDS AND REFERENCE DOCUMENTS

9.1. RECORDS

9.1.1. CREATION

- OR : 01/12/1979 – CREATION OF THE NORME

9.1.2. SUBJECT OF THE MODIFICATION

- B : 01/09/1988 – COMPLETE REWRITE OF THE NORME.
- C : 28/01/1997 – INTRODUCED INTO IDEM (*French only*).

9.2. REFERENCE DOCUMENTS

9.2.1. PSA DOCUMENTS

9.2.1.1. Normes

D25 1075.

9.2.1.2. Others

9.2.2. EXTERNAL DOCUMENTS

ASTMD714 (01/1981)

9.3. EQUIVALENT TO :

9.4. CONFORMS TO :

9.5. KEY-WORDS