

**PAINT COATINGS – PLASTICS  
SENSITIVITY TO SCRATCHING**

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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 : 22/10/2003***1.OBJECT AND FIELD OF APPLICATION**

The object of this method is to determine the sensitivity of a film of paint or a similar coating to scratching. It also enables an assessment to be made of the sensitivity of a plastic, with or without decorative coating, to scratching.

**2.PRINCIPAL**

The tests consists in determining the load required for a calibrated point to scratch the coating.

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

Erichsen 239 MI for resistance to scratching test.

**3.2.POINT**

**3.2.1** For tests on paints or similar coatings, a punch shall be used with a tungsten carbide ball 1 mm in diameter and an approximate Vickers hardness of 1400

**3.2.2** For tests on plastics, a conical point in carbide steel, with an angle at the top of 90° shall be used; the point of the cone must be rounded and present a radius of curvature of 0,08 mm ± 0,01 mm.

**3.3.MAGNIFYING GLASS 3**

fitted with a diffused light (for example : 20 watt fluorescent tube).

**4.PREPARATION OF THE TEST SPECIMENS**

The test specimens must perfectly flat and clean.

The dimensions shall be:

- Length : 100 to 150 mm,
- Width : 20 to 90 mm,
- Thickness : 0,1 o 20 mm.

The test samples are to be conditioned for at least 24 hours, at 23 °C ± 2°C and at 50 % ± 5 % relative humidity.

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## 5.MODE OF OPERATION

- Place the test specimen on the equipment and lock it with the button provided.
- With the weight on graduation 0, adjust the knurled screw, keeping the balance arm supporting the weight and the punch in equilibrium.
- Carry out a to-and-fro movement of the mobile carriage for 2 to 3 seconds, with successively increasing loads.
- Determine the load at which the punch produces a score mark visible under the magnifying glass (3.3).

### Remarks :

- It is necessary to change the position of the plate between two movements of the mobile carriage to avoid the overlapping of two routes in succession.
- The results may vary as in terms of the time elapsed after curing of the test specimens. It will be advisable:
  - For a fresh test specimen, to carry out the tests at different times after curing (example 1 hour, 24 hours, 1 week, 1 month etc)
  - For a test specimen which has already aged, to condition it for 24 hours at  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and  $50\text{ }\% \pm 5\text{ }\%$  relative humidity.

## 6.EXPRESSION OF RESULTS

Express the sensitivity to scratching by the figure corresponding to the weight necessary and sufficient to scratch the paint.

## 7.TEST REPORT

The test report must indicate, as well as the results:

- The paint or coating system,
- The type of point used,
- The conditions of application and of curing of the test specimen,
- The time which has elapsed after curing until the test,
- Any eventual anomalies.

## 8.RECORDS AND REFERENCE DOCUMENTS

### 8.1.RECORDS

#### 8.1.1.CREATION

- OR : 01/03/1981 – CREATION OF THE NORME

#### 8.1.2.SUBJECT OF THE MODIFICATION

- A: 31/01/1997 –INTRODUCTION TO IDEM (French only)
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### 8.2.REFERENCE DOCUMENTS

#### 8.2.1.PSA DOCUMENTS

##### 8.2.1.1.Normes

##### 8.2.1.2.Others

#### 8.2.2.EXTERNAL DOCUMENTS

### 8.3.EQUIVALENT TO:

### 8.4.CONFORMS TO:

### 8.5.KEY WORDS