

**PAINT COATINGS  
FINISHED FILM  
RESISTANCE TO AGEING IN AN AUTOCLAVE**

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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 : 23/11/2004*

## **1.OBJECT AND FIELD OF APPLICATION**

The object of this method is to determine the resistance to ageing in an autoclave of a finished film paint coating. This is a rapid ageing method for showing possible adhesion defects in the paint shop that are not highlighted by the adhesion test in a new condition.

It applies to finished film paint coatings on metallic substrates.

## **2.PRINCIPLE**

The test consists of submitting the paint coating to an ageing cycle in water vapour in an autoclave, then assessing the residual adhesion of this coating according to test method D25 1075.

Other tests may supplement the adhesion test and these must be specified in the standard documents.

## **3.EQUIPMENT AND REAGENT**

### **3.1.CONDITIONED ROOM**

at  $23\text{ °C} \pm 2\text{ °C}$ , with no hygrometric conditions.

**Note :** *These conditions are required for the adhesion test. The autoclave (3.2.) may be installed in premises under uncontrolled temperature.*

### **3.2.SANOCLAV AUTOCLAVE,**

reference G 81518, Supplier : BIOBLOCK.

### **3.3.VENTILATED OVEN,**

for use in a laboratory set to  $100\text{ °C} \pm 2\text{ °C}$ .

### **3.4. TOWN WATER**

## 4. TEST SPECIMENS

The dimensions of the test specimens must be such that they allow the adhesion test to be performed after crosshatching each test specimen in three different places spaced between them and the edges by at least 5 mm.

The type of substrate, its surface preparation, the conditions of application and drying of the coatings must be those corresponding to the use of the products to be examined and must be stated in the test report.

The test specimens shall be systematically produced in a complete range, with finished film.

The stoving of the intermediate paint, primer, shall be carried out in MAXIMUM conditions of time and temperature stipulated by the baking ranges defined in procedure DMOV-MXP00-0528.

The test may also be carried out on test specimens taken from components. In this case, stoving of the primer shall be that used in production.

The coating thickness must be known with a precision equal to  $\pm 10 \%$  or  $\pm 5 \mu\text{m}$  depending on the lowest of these values.

### 4.1. AGEING AND CONDITIONING

The test specimens may possibly undergo any type of ageing specified in the standard documents before this test.

Condition the test specimens for at least 16 heures, before the test, in the conditioned room (3.1.). A different conditioning time before the test may be specified in the standard documents.

## 5. METHOD OF OPERATION

- Pour into the autoclave (3.2.), an adequate volume of town water (3.4.) to obtain a water level of 30 mm to 40 mm.
- Place the test specimens coated with the paint film to be tested in the autoclave (3.2.). The test specimens must not be in contact with each other. A support may be used to avoid contact.
- Carefully close the cover and the valve of the autoclave (3.2.), observing the manufacturer's instructions.
- Program a constant temperature level of  $119 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$  and duration of  $15 \text{ min} \pm 1 \text{ min}$ .
- This temperature is maintained by actuating the valve within a pressure range between 0,9 bar and 1,2 bar in the autoclave (3.2.).
- After this time, turn off the electrical supply to the autoclave (3.2.) and fully open the valve in order to let the pressure drop.
- Remove the test specimens from the autoclave (3.2.) and place them immediately in the ventilated oven (3.3.) for  $1 \text{ hour} \pm 10 \text{ min}$ .
- Remove the test specimens from the ventilated oven (3.3.) and leave to cool in the conditioned room (3.1.) for  $1 \text{ hour} \pm 10 \text{ min}$ .
- Carry out the adhesion test with the equipment and according to §. METHOD OF OPERATION from test method D25 1075.

## 6. EXPRESSION OF RESULTS

The resistance to ageing in autoclave of a paint coating is expressed by grading the adhesion in conformity with test method D25 1075.

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## 7.TEST REPORT

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

- the reference to this method,
- the description of the coating, or of each of the protection system layers,
- the type of substrate and its surface preparation,
- the coating thickness and the number of layers,
- the laboratory stoving conditions for test specimens, as well as the sampling conditions from parts, if the data is available from Manufacturing,
- the test conditions should these differ from those set in the test method,
- 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 : 01/12/1998 – CREATION OF THE NORME

#### 8.1.2.SUBJECT OF THE MODIFICATION

- A : 19/05/2003 – UP-DATE OF THE TEST METHOD
- OR : 01/12/1998 – CREATION OF THE NORME

### 8.2.REFERENCE DOCUMENTS

#### 8.2.1.PSA DOCUMENTS :

##### 8.2.1.1.Normes :

D25 1075            PAINT COATINGS – CROSSHATCH TEST

##### 8.2.1.2.Others :

DMOV-MXP00-0528      REFERENCE SYSTEM FOR THICKNESS, BAKING AND APPEARANCE

#### 8.2.2.EXTERNAL DOCUMENTS :

### 8.3.EQUIVALENT TO :

### 8.4.CONFORMS TO :

### 8.5.KEY WORDS