

# ADHESIVES, PAINTS AND SIMILAR PREPARATIONS

## CONSISTENCY

### (CUP METHOD)

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NO USE RESTRICTION

This is a translation, the French original shall be used in all cases of litigation

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### FOREWORD

This document is in technical conformity with RNUR test method No. 1016.  
It must not be modified without prior consultation with RNUR.

## 1. OBJECT AND FIELD OF APPLICATION

The object of this method is to determine by means of a method easily applicable in the workshop, the consistency of adhesives, paints, primers and similar preparations, using a cup with defined characteristics.

It applies strictly to Newtonian products, but its field of application also extends to non-Newtonian products which, under normal conditions of use of consistometric cups, have a Newtonian flow rate.  
In the case of non-Newtonian products mentioned above, the flow periods in seconds cannot be transformed into a unit of dynamic viscosity.

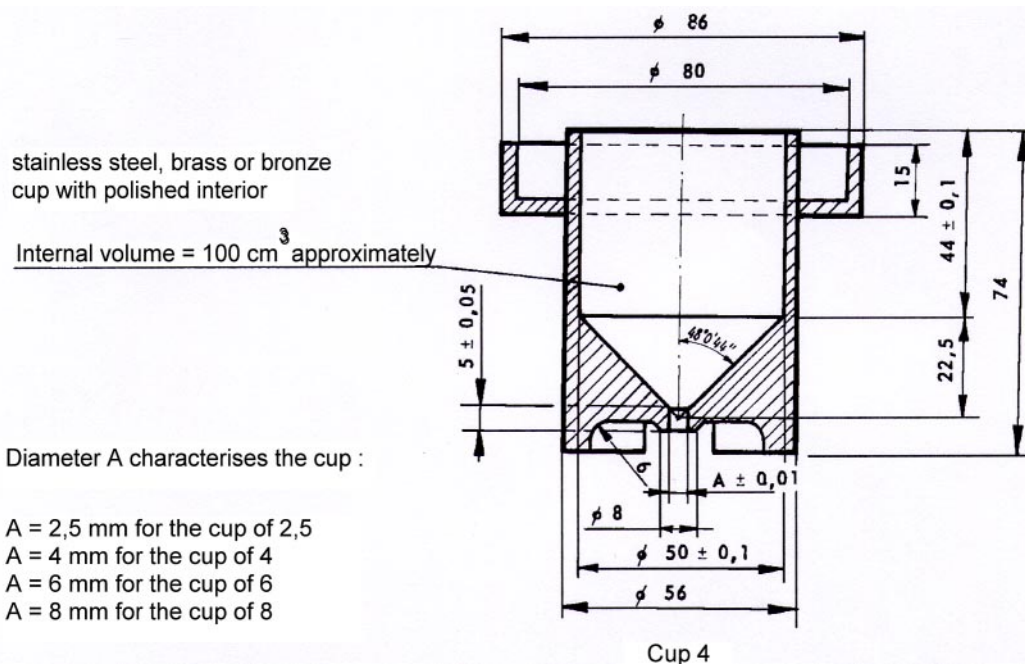
## 2. PRINCIPLE

The method consists of measuring at a specific temperature, the flow time ( $100 \pm 1$ ) cm<sup>3</sup> of the product to be tested, through a nozzle of defined diameter.

## 3. EQUIPMENT

### 3.1. CONSISTOMETRIC CUP

#### 3.1.1. CHARACTERISTICS



The edge of the cup overflow is slightly lower than the edge of the cup itself in order that the liquid can be levelled by means of a glass plate. The shape of the bottom section makes it possible to place the cup on a table and protect the nozzle against impacts.

### 3.1.2. DESIGNATION

Each cup is designated by the diameter of its nozzle, followed by the reference number of this test method.

**Example :**

Cup Ø 4 mm is designated by : consistometric cup 4 or cup 4, méthode d'essai D55 1016.

### 3.1.3. APPLICATION

The table is given for information for the selection of the relevant cup for the test.

CUP	FLOW DURATION IN SECONDS
2,5	30 to 250
4	20 to 300
6	30 to 300
8	(*)
(*) used for very thick products with a flow time greater than 300 seconds of the Ø 6 cup.	

### 3.2. CHRONOMETER

accurate to 0,2 of a second.

### 3.3. THERMOMETER

accurate to 0,5° C.

### 3.4. CHAMBER OR THERMOSTATICALLY CONTROLLED OVEN

at (23 ± 1)°C.

## 4. PREPARATION OF SAMPLES

The sample volume must be from 300 to 500ml to allow three measurements to be taken.

Dilute the product if necessary to the consistency specified for its use before sampling and before testing.

Avoid introducing into the cup a product containing bubbles, skins or foreign bodies in suspension.

## 5. PREPARATION AND CHECKING OF CUPS

Clean the cups after each test with a suitable solvent.

Every 6 months, check the cups with the same fluid by comparing with a reference cup reserved for this purpose.

The difference between the average of the three measurements of the cup to be checked and the average of the three measurements of the reference cup must be less than 4% of the latter.

## 6. METHOD OF OPERATION

### 6.1. CHOICE OF CUP

Cups 2,5 – 6 and 8 must only be used when the products to be tested are outside the application of cup 4.

### 6.2. CONDITIONING

Before taking a measurement, leave the cup and the receptacle containing the product to be tested for the required period of time in a thermostatically controlled oven or chamber with a temperature set to (23 ± 1)°C.

### 6.3. TEST TEMPERATURE

The normal test temperature is  $(23 \pm 1)^{\circ}\text{C}$ .

### 6.4. TEST TECHNIQUE

Place the cup on its horizontal support after ensuring that it is clean.

Block the nozzle with one finger placed under the cup and fill the cup right to the top with the product to be tested until achieving a slightly convex meniscus.

Eliminate the excess product by placing a glass plate on the top of the cup, taking care not to trap any air bubbles, then withdraw the glass plate by sliding it off horizontally.

Unplug the nozzle and start the chronometer.

Stop the chronometer when the stream of fluid breaks.

The measurement may only be considered as significant for a continuous flow of at least 98 ml of fluid.

## 7. EXPRESSION OF RESULTS

Express the result by the nearest complete number of seconds to the arithmetic mean of the results of the three measurements. The variation between each of the measurements and the average value must be less than 5% of the average value.

## 8. TEST REPORT

In addition to the cup number used, the test report must give details of the results obtained and the test conditions, the test temperature if it differs from the normal test temperature laid down in the method, the non-Newtonian tendency of the product, any operating details not specified in the method as well as any incidents which may have affected the results.

## 9. RECORDS AND REFERENCE DOCUMENTS

### 9.1. RECORDS

#### 9.1.1. CREATION

OR : 01/09/1979 – CREATION OF THE NORME

#### 9.1.2. SUBJECT OF THE MODIFICATION

- A : 17/12/1996 – INTRODUCED INTO IDEM (*French only*).

### 9.2. REFERENCE DOCUMENTS

#### 9.2.1. PSA DOCUMENTS

##### 9.2.1.1 Normes

##### 9.2.1.2. Others

#### 9.2.2. EXTERNAL DOCUMENTS

### 9.3. EQUIVALENT TO :

REN1016

### 9.4. CONFORMS TO :

### 9.5. KEY-WORDS