



TECHNICAL REPORT

# **Determination of the watertightness**

TR 003  
Edition May 1999

# Determination of the watertightness

Edition May 1999

## Foreword

*EOTA Technical Reports are developed as supporting reference documents to European Technical Approval Guidelines and can also be applicable to a Common Understanding Assessment Procedures, an EOTA Comprehension Document or an European Technical Approval, as far as reference is made therein.*

*EOTA Technical Reports go into detail in some aspects and express the common understanding of existing knowledge and experience of the EOTA bodies at a particular point in time.*

*Where knowledge and experience is developing, especially through approval work, such reports can be amended and supplemented.*

*When this happens, the effect of the changes upon the European Technical Approval Guidelines will be laid down in the relevant Comprehension Documents, unless the European Technical Approval Guideline is revised.*

*This EOTA Technical Report has been prepared by the EOTA Working Group 04.02/01 "Liquid applied roof waterproofing Kits" and endorsed by EOTA.*

## 1 Scope

This EOTA Technical Report specifies the method for determining the watertightness of liquid applied roof waterproofing kits, tested as a free film.

## 2 Principle of the method

The watertightness of liquid applied roof waterproofing kits tested as a free film, is determined by applying a specified water pressure to the exposed side of the installed product by means of a hydrostatic head of water for a fixed period of time and detecting any water leakage.

## 3 Apparatus

### 3.1 Flanged box

To provide the requested hydrostatic pressure a metal circular flanged box is used with an aperture of 150 mm, connected to an open ended pipe or vessel which rises to a specified height or a pressure vessel. The flanged box includes a manometer and inlet and exhaust valves (Figure 1). The flanged box is connected to a tap water with the addition of surfactants.

### 3.2 Clamping unit

Used to fix the test specimen to the aperture of the flanged box. It includes sealing gasket, steel clamping ring and wing nuts.

### 3.3 Filter paper

Circular with diameter of 200 mm ( $\pm 2$ ).

### 3.4 Moisture indicator

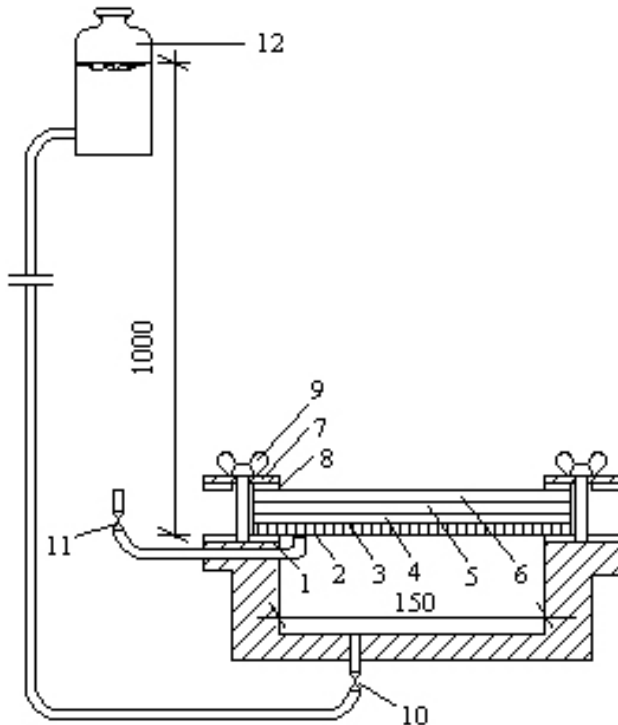
It is composed by a mixture of fine white (icing) sugar (99,5%) and methylene blue dye (0,5%) sieved over a 0,074 mm mesh and dried over calcium chloride in a desiccator.

### 3.5 Cutter

Any suitable cutting device is used to cut circular test specimen with a diameter of 200 mm ( $\pm 2$ ).

### 3.6 Inspection window

It is obtained by means of a circular glass sheet with a minimum thickness  $\geq 4$  mm and a diameter of 200 mm ( $\pm 2$ ).



**Figure 1 – Schematic diagram of flanged box**

1 – lower rubber sealing gasket; 2 - inserted test specimen; 3 - filter paper; 4 - moisture indicating mixture; 5 - filter paper; 6 - circular ordinary window glass sheet; 7 - upper rubber sealing gasket; 8 - steel clamping ring; 9 - wing nuts; 10 - water inlet valve; 11 - air exhaust valve; 12 - level / pressure indicator

## 4 Test specimen

### 4.1 Dimensions

The test specimen is a circular portion of the installed product having a diameter of 200 mm ( $\pm 2$ ).

### 4.2 Number

The number of test specimens is three.

### 4.3 Preparation

The product shall be installed as prescribed by the manufacturer, in such a way that a free sample is obtained (e.g. by use of siliconised paper).

After curing of the product, the siliconised paper shall be removed and the three test specimens shall be cut from the liquid applied roof waterproofing kit with the required dimensions.

*NOTE 1 – When the liquid applied roof waterproofing kit incorporates a supporting layer then one test specimen shall be taken at each of the following places: at the centre of the supporting layer, at the longitudinal overlap of the supporting layer and at the transversal overlap of the supporting layer.*

*NOTE 2 – In case of testing at overlaps, additional sealant (e.g. silicones) might be necessary.*

### 4.4 Curing and conditioning

The product shall be cured at  $23^{\circ}\text{C}$  ( $\pm 2$ ) and 50% ( $\pm 5$ ) relative humidity for at least the period as prescribed by the manufacturer.

The cured test specimens shall be then conditioned at  $23^{\circ}\text{C}$  ( $\pm 2$ ) and 50% ( $\pm 5$ ) relative humidity for a period of at least 16 hours.

## 5 Procedure

**5.1** The test shall be carried out at  $23^{\circ}\text{C}$  ( $\pm 2$ ) unless otherwise specified.

**5.2** Place the test assembly consisting of sealing gasket, test specimen (exposed side to water), filter paper, moisture indicating mixture, filter paper, circular window glass sheet and sealing gasket respectively in the clamping unit.

**5.3** Fix the test assembly by means of the wing nuts and the steel clamping ring to the aperture of the metal flanged box.

**5.4** Open the water inlet valve and the air exhaust valve simultaneously.

**5.5** Close the air exhaust valve once water passes through, indicating the apparatus is filled with water.

**5.6** Apply and maintain a water pressure of 1000 mm ( $\pm 5$ ) hydrostatic head of water on the test specimen.

**5.7** After 24 hours ( $\pm 0,5$ ) examine visually through the window glass if any coloration occurred in the upper filter paper.

**5.8** Perform the test on the remaining test specimens.

## **6 Expression of results**

Determine for each test specimen if there is a leakage.

## **7 Test report**

The test report shall include the following information:

- a. reference to this Technical Report;
- b. the name of the testing laboratory;
- c. date of testing;
- d. a description of the liquid applied roof waterproofing kit, including dimensions of the test specimen, curing, conditioning;
- e. the test conditions including water pressure and period of time;
- f. a description of the behaviour of each test specimen to water pressure, including coloration of filter papers found;
- g. all operating details not specified in this Technical Report, as well as incidents likely to have influenced the results.



- prEN 1928: 1994