

## ANNEX III

### PART 1

#### **Requirements for spray suppression devices**

#### 0. GENERAL SPECIFICATIONS

- 0.1. Spray-suppression devices must be constructed in such a way that they operate properly when used normally on wet roads. Moreover, they must incorporate no structural or manufacturing defect detrimental to their proper functioning or behaviour.

#### 1. TESTS TO BE CARRIED OUT

- 1.1. Depending on their physical operating principle spray-suppression devices are subjected to the relevant tests as described in Parts 2 and 3 and must deliver the results required in point 5 of those Parts.

#### 2. APPLICATION FOR EC COMPONENT TYPE-APPROVAL

- 2.1. The application for EC component type-approval pursuant to Article 7 of Directive 2007/46/EC of a type of spray-suppression device shall be submitted by the manufacturer.
- 2.2. A model for the information document is set out in Part 1 of Annex II.
- 2.3. The following shall be submitted to the technical service responsible for conducting the type-approval tests:

Four samples: three of which are for tests and a fourth is to be kept by the laboratory for any subsequent verification. The test laboratory may require further samples.

#### 2.4. **Markings**

- 2.4.1. Each sample must be clearly and indelibly marked with the trade name or mark and an indication of the type and include a space that is large enough for the EC component type-approval mark.
- 2.4.2. A symbol 'A' for devices of the energy-absorption type or 'S' for devices of the air/water separator type shall be added to the approval mark in accordance with point 1.3 of the Appendix of Annex VII to Directive 2007/46/EC.

### PART 2

#### **Tests on spray-suppression devices of the energy-absorber type**

#### 1. PRINCIPLE

The aim of this test is to quantify the ability of a device to retain the water directed against it by a series of jets. The test assembly is intended to reproduce the conditions under which the device is to function when fitted to a vehicle as regards the volume and speed of the water thrown up from the ground by the tyre tread.

#### 2. EQUIPMENT

See Figure 8 in Annex VI for a description of the test assembly.

### 3. TEST CONDITIONS

- 3.1. The tests must be carried out in a closed room with a still-air environment.
- 3.2. The ambient temperature and the temperature of the test pieces must be 21 ( $\pm$  3) °C.
- 3.3. De-ionised water is to be used.
- 3.4. The test pieces must be prepared for each test by wetting.

### 4. PROCEDURE

- 4.1. Secure a 500 (+ 0/- 5) mm wide 750 mm high sample of the equipment to be tested to the vertical plate of the testing equipment, making sure that the sample lies well within the limits of the collector, and that no obstacle is able to deflect the water, either before or after its impact.
- 4.2. Set the water flow rate at 0,675 (+/- 0,01) l/s and direct at least 90 l, at most 120 l on to the sample from a horizontal distance of 500 (+/- 2) mm (Figure 8 of Annex VI).
- 4.3. Allow the water to trickle from the sample into the collector. Calculate the percentage of water collected versus the quantity of water sprayed.
- 4.4. Carry out the test five times on the sample according to points 4.2 and 4.3. Calculate the average percentage of the series of five tests.

### 5. RESULTS

- 5.1. The average percentage calculated in point 4.4 must be 70 % or higher.
- 5.2. If within a series of five tests the highest and lowest percentages of water collected depart from the average percentage by more than 5 %, the series of five tests must be repeated.

If within a second series of five tests the highest and lowest percentages of water recovered again depart from the average percentage by more than 5 % and if the lower value does not satisfy the requirements of point 5.1, type-approval shall be refused.

- 5.3. Test whether the vertical position of the device influences the results obtained. If it is the case, the procedure described in points 4.1 to 4.4 must be repeated in the positions giving the highest and lowest percentage of water collected; the requirements of point 5.2 remain in force.

The mean of the individual results shall then be taken to give the average percentage. This average percentage must be 70 or higher.

## PART 3

### **Test on spray-suppression devices of the air/water separator type**

#### 1. PRINCIPLE

This test is intended to determine the effectiveness of a porous material intended to retain the water with which it has been sprayed by means of a pressurised air/water pulveriser.

The equipment used for the test must simulate the conditions to which the material would be submitted, with regard to the volume and speed of the water sprays produced by the tyres, if it were fitted to a vehicle.

## 2. EQUIPMENT

See Figure 9 in Annex VI for a description of the test assembly.

## 3. TEST CONDITIONS

- 3.1. The tests must be carried out in a closed room with a still-air environment.
- 3.2. The ambient temperature and the temperature of the test pieces must be  $21 (\pm 3) ^\circ\text{C}$ .
- 3.3. De-ionised water must be used.
- 3.4. The test pieces must be prepared for each test by wetting.

## 4. PROCEDURE

- 4.1. Secure a  $305 \times 100$  mm sample vertically in the test assembly, check that there is no space between the sample and the upper curved plate and that the tray is properly in position. Fill the pulveriser tank with  $1 \pm 0,005$  litres of water and place this as described in the diagram.

- 4.2. The pulveriser must be regulated as follows:

|                         |  |
|-------------------------|--|
| pressure<br>pulveriser) | (at : 5 bar + 10 %/- 0 %   |
| flowrate                | : 1 litre/minute $\pm$ 5 seconds   |
| pulverisation           | : circular, $50 \pm 5$ mm in diameter at $200 \pm 5$ mm from the sample, nozzle<br>$5 \pm 0,1$ mm in diameter. |

- 4.3. Pulverise until there is no more water mist and note the time taken. Let the water flow out of the sample on to the tray for 60 seconds and measure the volume of water collected. Measure the quantity of water left in the pulveriser tank. Calculate the percentage by volume of water collected versus the volume of water pulverised.
- 4.4. Carry out the test five times and calculate the average percentage of the quantity collected. Check before each test that the tray, pulveriser tank and measuring vessel are dry.

## 5. RESULTS

- 5.1. The average percentage calculated in point 4.4 must be 85 % or higher.
- 5.2. If within a series of five tests the highest and lowest percentages of water collected depart from the average percentage by more than 5 %, the series of five tests must be repeated. If within a second series of five tests the highest and lowest percentages of water recovered again depart from the average percentage by more than 5 %, and if the lower value does not satisfy the requirements of point 5.1, type-approval shall be refused.
- 5.3. Where the vertical position of the device influences the results obtained, the procedure described in points 4.1 to 4.4 must be repeated in the positions giving the highest and lowest percentages of water collected; the requirements of point 5.2 remain in force.

The requirement of point 5.1 remains in force in order to give the results of each test.