

JIS

JAPANESE INDUSTRIAL STANDARD

Form, size and performance
testing methods of filtration
media for collecting
airborne particulate matters

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Form, size and performance testing methods
of filtration media for
collecting airborne particulate matters

1. Scope

This Japanese Industrial Standard specifies the form, size and performance testing methods of filtration media for collecting airborne particulate matters (hereafter referred to as the "filters", for qualitative or quantitative analysis.

- Remarks
1. The standards applicable to this Standard are shown in the Attached Table 1.
 2. In this standard, unit and numerical values shown in braces { } are in accordance with the traditional unit system, and are given together for reference.

2. Forms

Forms of filters shall be classified into circular forms, rectangular forms, tape forms and cylindrical forms.

3. Dimension

Dimensions of filters shall be as shown in Table 1, Table 2, Table 3 and Table 4 according to the form.

Table 1. Circular form filters

Unit: mm

Diameter	Tolerances
13	±0.5
18	
25	
35	
37	
47	
55	±1
60	
70	
80	
90	
100	
110	

Table 2. Rectangular form filter

Unit: mm

Length × width	Tolerances
203 × 254	±1

Table 3. Tape form filters ⁽¹⁾

Unit: mm

Width	Tolerances
30	±0.5
35	
40	
50	
75	±1
78	
80	

Note ⁽¹⁾ These filters are not specified on the length specially.

Table 4. Cylindrical form filters ⁽²⁾

Unit: mm

Diameter × length	Tolerances	
	Diameter	Length
20 × 45	±0.5	±3
20 × 90		
25 × 90		
30 × 90		
40 × 90		

Note ⁽²⁾ Diameters shall be the outside diameter at the open side.

4. Materials

Materials of filters shall be the fibre laminating type made of fibres of cellulose, cellulose ester, glass, silica, synthetic resins and metals, and thin film type made of cellulose ester, synthetic resin and metals, as the principal component. However, the filters used for the chemical analysis of the collected airborne particulate matters shall be those whose contents of iron, copper, zinc, cadmium and lead have been determined in accordance with 5.6.

For filters whose principal component is metallic fibre or film, the metallic components of them are excluded.

5. Performance testing

5.1 Testing conditions Testing conditions of collecting efficiency, pressure loss and pressurizing strength of filters shall be as follows:

- (1) Temperature The temperature shall be an arbitrary temperature between 10 to 30°C.
- (2) Relative humidity The relative humidity shall be between 45 to 85 %.
- (3) Atmospheric pressure Atmospheric pressure during the tests shall be within 2 kPa{203.9 mmH₂O} for the changing range.

5.2 Test for collecting efficiency Tests for collecting efficiency shall be carried out as follows:

- (1) Filters for test At least, five filters formed into 40 mm in diameter shall be used in testing. Filters of the diameter not more than 40 mm shall be made from the same material.
- (2) Particulates for test Particulates used for tests, shall be Class 13 A and B (Airisol) specified in JIS Z 8901.
- (3) Concentration of particulates for test The concentration of particulate before filtering shall be in the range of 0.1 to 0.5 mg/m³, and the fluctuation of the concentration shall be avoided, as much as possible, during the test.
- (4) Measuring apparatus for collecting efficiency
 - (4.1) The apparatus shall be that shown below and an example of its construction is shown in Fig. 1.
 - (a) Generator of particulates for test which is capable of generating the particulates of Class 13 A or B specified in JIS Z 8901.
 - (b) Measuring apparatus by light scattering method two of which specified in JIS B 7954.