

DIN EN 779:2012-10 (E)

Particulate air filters for general ventilation - Determination of the filtration performance

Contents		Page
Foreword		4
Introduction		5
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Symbols and abbreviated terms	11
5	Requirements	12
6	Classification	14
7	Test rig and equipment	15
7.1	Test conditions	15
7.2	Test rig	15
7.3	Aerosol generation - DEHS Test Aerosol	17
7.4	Aerosol sampling system	18
7.5	Flow measurement	19
7.6	Particle counter	19
7.7	Differential pressure measuring equipment	19
7.8	Dust feeder	19
8	Qualification of test rig and apparatus	23
8.1	Air velocity uniformity in the test duct	23
8.2	Aerosol uniformity in the test duct	23
8.3	Particle counter sizing accuracy	24
8.4	Particle counter zero test	25
8.5	Particle counter overload test	25
8.6	100 % efficiency test	25
8.7	Zero % efficiency test	25
8.8	Aerosol generator response time	26
8.9	Pressure equipment calibration	26
8.10	Pressure drop checking	26
8.11	Dust feeder air flow rate	26
8.12	Summary of qualification requirements	27
8.13	Apparatus maintenance	28
9	Test materials	28
9.1	Test air - cleanliness, temperature and humidity	28
9.2	Test aerosol	28
9.3	Loading dust	29
9.4	Final filter	29
10	Test procedure for the filter	30
10.1	Preparation of filter to be tested	30
10.2	Initial pressure drop	30
10.3	Initial efficiency	30

10.3.1	General	30
10.3.2	Efficiency measurement	30
10.4	Dust loading	31
10.4.1	Dust loading procedure	31
10.4.2	Arrestance	32
10.4.3	Efficiency	33
10.4.4	Average efficiency	33
10.4.5	Test dust capacity	33
11	Test method for discharging of filter material	34
11.1	General	34
11.2	Equipment	34
11.3	Preparation of test samples	35
11.4	Measurement of the filter medium efficiency	35
11.4.1	General	35
11.4.2	Isopropanol test	35
11.4.3	Expression of results	36
11.5	Report	36
12	Uncertainty calculation of the test results	37
13	Reporting	38
13.1	General	38
13.2	Interpretation of test reports	39
13.3	Summary	39
13.4	Efficiency	41
13.5	Pressure drop and air flow rate	41
13.6	Arrestance and test dust capacity	42
13.7	Marking	42
Annex A (informative)	Shedding from filters	51
A.1	General	51
A.2	Shedding	51
A.2.1	Particle bounce	51
A.2.2	Release of fibres or particulate matter from filter material	51
A.2.3	Re-entrainment of particles	51
A.3	Testing	52
A.4	References	52
Annex B (informative)	Commentary	53
B.1	General	53
B.2	Classification	53
B.3	Test	53
B.3.1	Test aerosol	53
B.3.2	Loading dust	54
B.3.3	Distribution and sampling of aerosols	54
B.3.4	Particle counter characteristics	54
B.3.5	Flat sheet test	54
B.4	Filtration characteristics	55
B.4.1	General	55
B.4.2	Pressure drop	55
B.4.3	Discharged efficiency	55
Annex C (informative)	Pressure drop calculation	56
Annex D (informative)	Example of a completed test report	58
D.1	Example of test reports	58
D.2	Examples of calculations	66
D.3	Final results at 450 Pa	69
Bibliography	70