



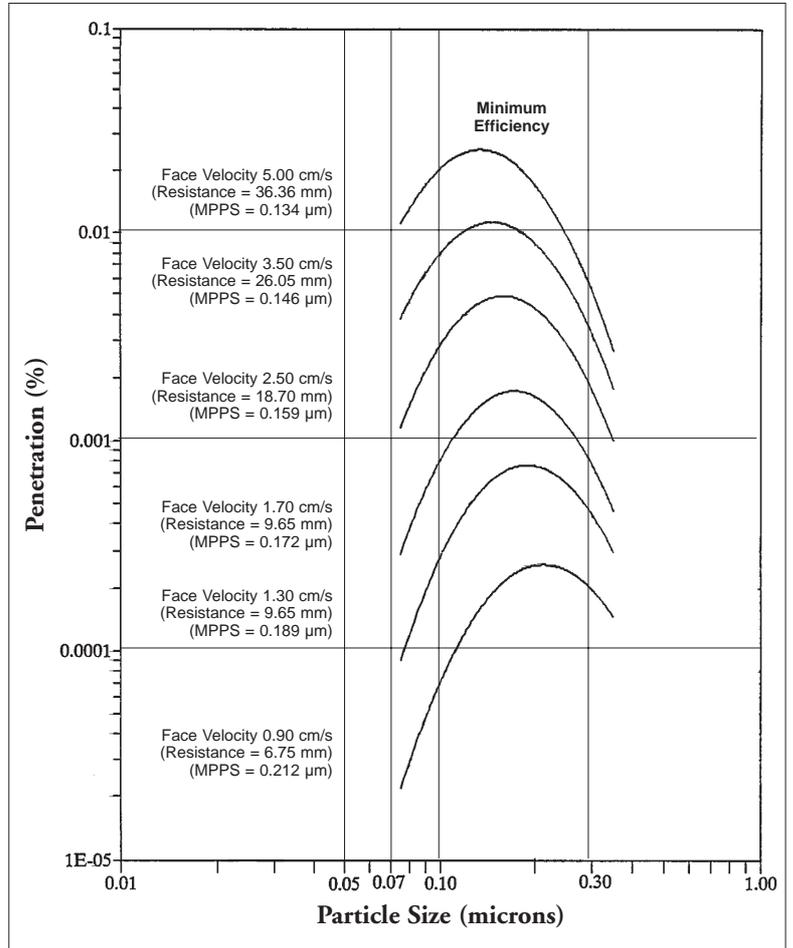
EN1822

New European Standard for HEPA & ULPA Filters

Procedure

- On a flat sheet of media, the MPPS is determined for the given media velocity. This can be done with a laser spectrometer or a combination of electrostatic classifier and CNC (Condensed Nucleus Counter).
- The filter is assembled with the specified media grade and amount of media to comply with the defined media velocity.
- The filter is challenged with an aerosol and at the MPPS both the local and overall efficiency is determined with either a CNC or laser spectrometer.
- Leaks are specified as maximum allowable local penetration at the MPPS and must not exceed 5 x the overall penetration.
- The filter is classified according to the test results in the range H10 - H14 for HEPA, U15 - U17 for ULPA.

Penetration vs Particle Size



Filter Classification	Efficiency (%) at the MPPS		Penetration (%) at the MPPS	
	Overall Value	Local Value	Overall Penetration	Local Penetration
H 10	= > 85	-	15	-
H 11	= > 95	-	5	-
H 12	= > 99.5	-	0.5	-
H 13	= > 99.95	99.75	0.05	0.25
H 14	= > 99.995	99.975	0.005	0.025
U 15	= > 99.9995	99.9975	0.0005	0.0025
U 16	= > 99.99995	99.99975	0.00005	0.00025
U 17	= > 99.999995	99.9999	0.000005	0.0001

Notes:

- Filters in the class H10, H11 and H12 do not require verification of local penetration.
- Filters in the classification H13 and H14 may, as an alternative, be verified with the visual oil-smoke test (previously known as DIN 24.184), which is accepted as equal or more searching than the specified local penetration.
- U17 is an exception to the rule. In this case local penetration may not exceed 20 x the overall penetration value.



AAF-International B.V., P.O. Box 7928, 1008 AC Amsterdam, The Netherlands
Tel.: + 31 20 549 44 11, Fax: + 31 20 644 43 98

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