



ASHRAE Standard 52.2-2012				ISO 16890: 2016				EN	EN779: 2012			EN1822: 2009	
Min. Efficiency Reporting Value	Composite Average Particle Size Efficiency (E <sub>m</sub> ) % in Size Range, μm			Average of initial and discharged efficiency E <sub>m</sub> = (E <sub>i</sub> + E <sub>d</sub> )/2		Initial efficiency (E <sub>i</sub> )	Initial Arrestance (A <sub>m</sub> )	Filter Class	Average Arrestance (A <sub>m</sub> ) of Synthetic Dust	Average Efficiency (E <sub>m</sub> ) at 0.4μm	Minimum Efficiency (E <sub>min</sub> ) at 0.4μm	Initial Efficiency (E <sub>i</sub> ) at MPPS (typically 0.08 - 0.15 μm)	
	Range 1	Range 2	Range 3	ePM1 (%)	ePM2.5 (%)	ePM10 (%)	Coarse (%)		Test Final dP 250Pa	Test Final dP 450Pa			
(MERV)	0.3 - 1.0	1.0 - 3.0	3.0 - 10.0	0.3 - 1.0	0.3 - 2.5	0.3 - 10	ISO Fine Dust		%	%	%	%	
1			E <sub>m</sub> < 20				A <sub>m</sub> < 50 Final dP 200 Pa	G1	50 ≤ A <sub>m</sub> ≤ 65				
2			E <sub>m</sub> < 20					A <sub>m</sub> ≥ 50 Final dP 300 Pa	G2	65 ≤ A <sub>m</sub> ≤ 80			
3			E <sub>m</sub> < 20						G3	80 ≤ A <sub>m</sub> ≤ 90			
4			E <sub>m</sub> < 20							G4	A <sub>m</sub> ≤ 90		
5			E <sub>m</sub> ≥ 20				M5		40 ≤ E <sub>m</sub> ≤ 60				
6			E <sub>m</sub> ≥ 35					M6		60 ≤ E <sub>m</sub> ≤ 80			
7			E <sub>m</sub> ≥ 50				F7			80 ≤ E <sub>m</sub> ≤ 90	E <sub>min</sub> ≥ 35		
8		E <sub>m</sub> ≥ 20	E <sub>m</sub> ≥ 70					F8		90 ≤ E <sub>m</sub> ≤ 95	E <sub>min</sub> ≥ 55		
9		E <sub>m</sub> ≥ 35	E <sub>m</sub> ≥ 75				F9			95 ≤ E <sub>m</sub>	E <sub>min</sub> ≥ 70		
10		E <sub>m</sub> ≥ 50	E <sub>m</sub> ≥ 80					E <sub>m</sub> > 80					
11	E <sub>m</sub> ≥ 20	E <sub>m</sub> ≥ 65	E <sub>m</sub> ≥ 85				N/A						
12	E <sub>m</sub> ≥ 35	E <sub>m</sub> ≥ 80	E <sub>m</sub> ≥ 90					N/A					
13	E <sub>m</sub> ≥ 50	E <sub>m</sub> ≥ 85	E <sub>m</sub> ≥ 90	E <sub>m</sub> ≥ 50	E <sub>m</sub> ≥ 65	E <sub>m</sub> > 80	N/A						
14	E <sub>m</sub> ≥ 75	E <sub>m</sub> ≥ 90	E <sub>m</sub> ≥ 95	E <sub>m</sub> ≥ 70	E <sub>m</sub> > 80	E <sub>m</sub> > 90		N/A					
15	E <sub>m</sub> ≥ 85	E <sub>m</sub> ≥ 90	E <sub>m</sub> ≥ 95				N/A						
16	E <sub>m</sub> ≥ 95	E <sub>m</sub> ≥ 95	E <sub>m</sub> ≥ 95					N/A					
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		E10			E <sub>i</sub> ≥ 85	
								E11			E <sub>i</sub> ≥ 95		
								E12			E <sub>i</sub> ≥ 99.5		
								H13			E <sub>i</sub> ≥ 99.95		
								H14			E <sub>i</sub> ≥ 99.995		
								U15			E <sub>i</sub> ≥ 99.9995		
								U16			E <sub>i</sub> ≥ 99.99995		
U17			E <sub>i</sub> ≥ 99.999995										

A<sub>m</sub> = Average Arrestance  
 E<sub>m</sub> = Average Efficiency  
 E<sub>min</sub> = Minimum Efficiency  
 E<sub>d</sub> = Discharged Efficiency  
 E<sub>i</sub> = Initial Efficiency

Note: The filter class is the highest class where the filter meets all requirements.  
 Comparisons are approximation given for reference only. Filters should be tested to the most recent standards.  
 For ISO ePM1 and ePM2.5 both initial and discharged efficiency need to be over 50% to qualify for a class