



# FILTER SELECTION GUIDE



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Modified Table E-1 from ASHRAE 52.2-2007 APPLICATION GUIDELINES

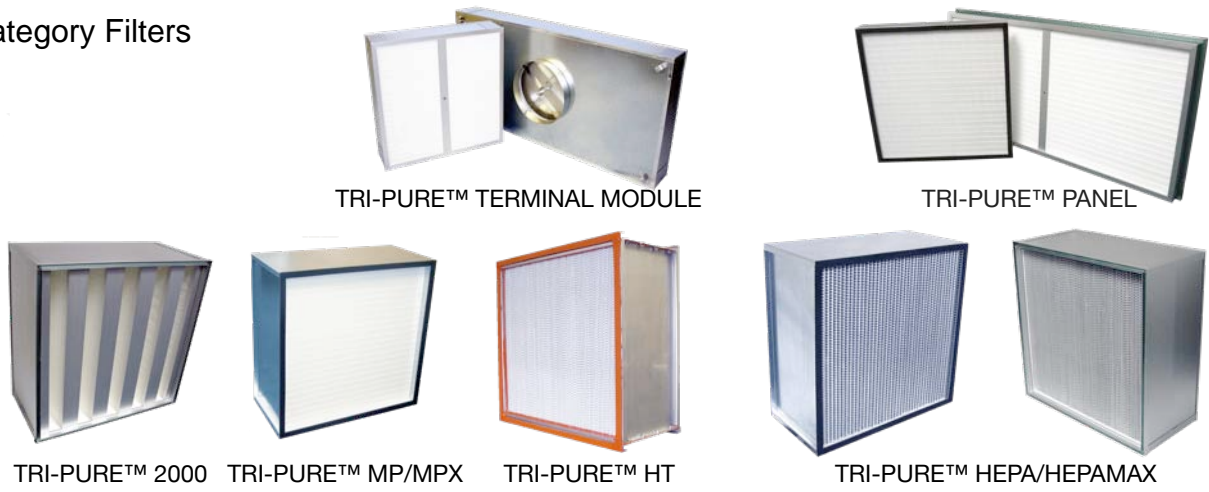
| Standard 52.2<br>Minimum<br>Efficiency<br>Reporting Value<br>(MERV) | Approx Std 52.1 Results |            | Application Guidelines  |  | Tri-Dim Filter Corporation Product<br>Selection |
|---|-------------------------|------------|---|--|---|
|   | Dust Spot<br>Efficiency | Arrestance | Typical Controlled<br>Containment   | Typical Applications<br>and Limitations  |   |
|   | n/a                     | n/a        | <b>≤0.30 µm Particle Size</b><br>Virus (unattached)<br>Carbon Dust<br>Sea salt<br>All Combustion Smoke<br>Radon progeny   | Cleanrooms<br>Radioactive Materials<br>Pharmaceutical<br>manufacturing<br>Carcinogenic materials<br>Orthopedic surgery | <b>A</b>  |
| 16  | n/a                     | n/a        | <b>0.30-1.0 µm Particle Size</b><br>All bacteria<br>Most tobacco smoke<br>Droplet nuclei (sneeze)<br>Cooking Oil<br>Most Smoke<br>Insecticide Dust<br>Copier Toner<br>Most face powder<br>Most paint pigments | Hospital inpatient care<br>General surgery<br>Smoking lounges<br>Superior commercial<br>buildings                      | <b>B</b>  |
| 15  | >95%                    | n/a        |   |  |   |
| 14  | 90-95%                  | >98%       |   |  |   |
| 13  | 80-90%                  | >98%       |   |  |   |
| 12  | 70-75%                  | >95%       | <b>1.0-3.0 µm Particle Size</b><br>Legionella<br>Humidifier dust<br>Lead dust<br>Milled flour<br>Coal dust<br>Auto emissions<br>Nebulizer drops<br>Welding fumes  | Superior residential<br>Better commercial<br>buildings<br>Hospital laboratories  | <b>C</b>  |
| 11  | 60-65%                  | >95%       |   |  |   |
| 10  | 50-55%                  | >95%       |   |  |   |
| 9   | 40-45%                  | >90%       |   |  |   |
| 8   | 30-35%                  | >90%       | <b>3.0-10.0 µm Particle Size</b><br>Mold<br>Spores<br>Hair spray<br>Fabric protector<br>Dusting aids<br>Cement dust<br>Pudding mix<br>Snuff<br>Powdered milk  | Commercial buildings<br>Better residential<br>Industrial workplaces<br>Paint booth inlet air                           | <b>D</b>  |
| 7   | 25-30%                  | >90%       |   |  |   |
| 6   | <20%                    | 85-90%     |   |  |   |
| 5   | <20%                    | 80-85%     |   |  |   |

Note: The above table, columns 1 through 5, are taken from ASHRAE Standard 52.2-2007

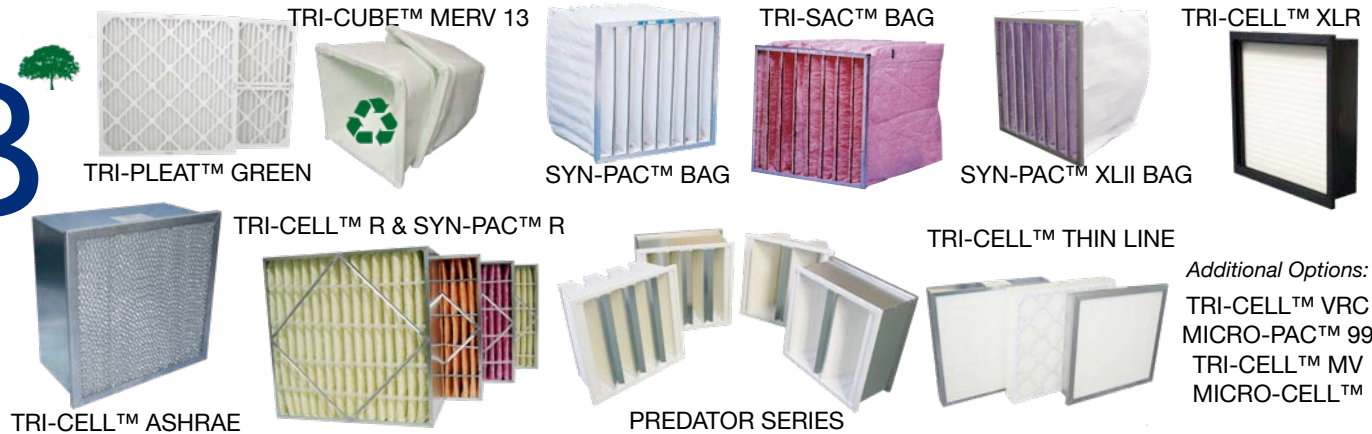
**How to use this guide** - identify which filter category (A, B, C or D) fills the needs for your application - then look on page 3 for the corresponding letter that will show the options within that category. Please consult with your sales representative for specific performance details of selected filter(s).

TRI-DIM Category Filters

**A** 



**B** 

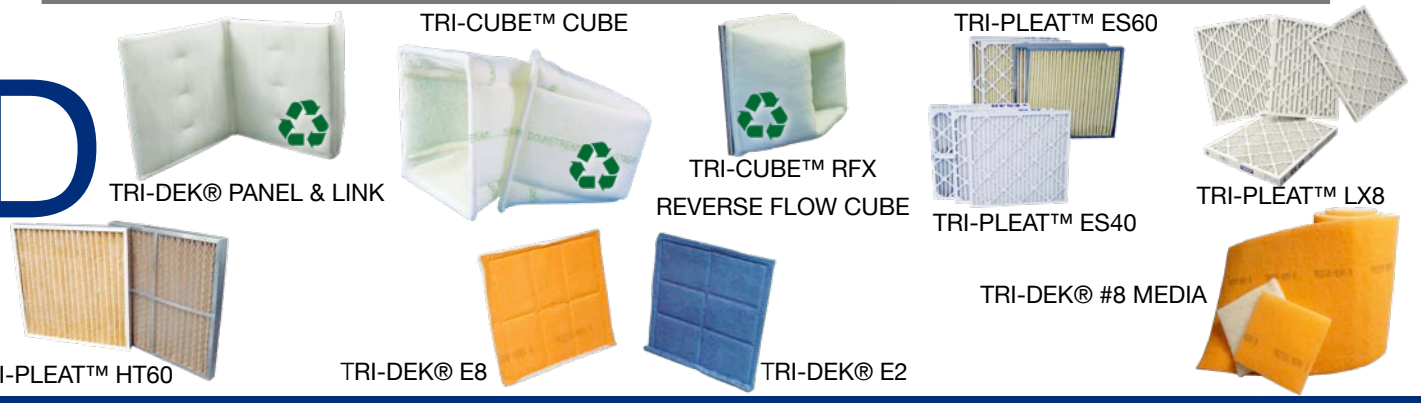


*Additional Options:*  
 TRI-CELL™ VRC  
 MICRO-PAC™ 99  
 TRI-CELL™ MV  
 MICRO-CELL™

**C**



**D**



Use Category 'A' or 'B' Filters for MERV 13 or Higher, LEED Compliant



= Post Consumer Recycled Content

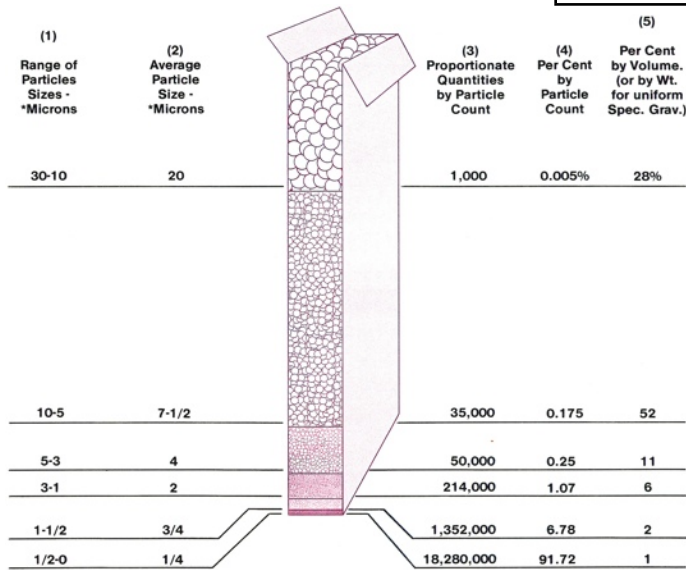
The first step in filter selection is to determine what the objective is for the filtration system. What is the 'target' particle size for the application? As an example the 'target' particle size in most health care facilities is one micron because 99% of all known bacteria are one micron and larger. The figure below might offer some assistance as it shows the typical distribution of particles in ambient air.

Once the objective has been determined Table 12-1 (right) will be useful in determining which MERV efficiency will remove the target size particles. More detailed efficiency numbers can be found in the ASHRAE 52.2 Test Report.

Once the target MERV rating has been established Table E-1 on the first page converts the MERV ratings into the various filter options offered by Tri-Dim.

**Modified TABLE 12-1 from ASHRAE 52.2-2007  
Minimum Efficiency Reporting Value (MERV) Parameters**

| Standard 52.2<br>Minimum<br>Efficiency<br>Reporting<br>Value (MERV) | Composite Average Particle Size Efficiency, %<br>in Size Range, µm |  |   |
|---|--|--|---|
|   | E <sub>1</sub><br>Range 1<br>0.30 - 1.0                            | E <sub>2</sub><br>Range 2<br>1.0 - 3.0 | E <sub>3</sub><br>Range 3<br>3.0 - 10.0 |
| 16  | 95% ≤ E <sub>1</sub>   | 95% ≤ E <sub>2</sub>                   | 95% ≤ E <sub>3</sub>                    |
| 15  | 85% ≤ E <sub>1</sub> < 95%   | 90% ≤ E <sub>2</sub>                   | 90% ≤ E <sub>3</sub>                    |
| 14  | 75% ≤ E <sub>1</sub> < 85%   | 90% ≤ E <sub>2</sub>                   | 90% ≤ E <sub>3</sub>                    |
| 13  | E <sub>1</sub> < 75%   | 90% ≤ E <sub>2</sub>                   | 90% ≤ E <sub>3</sub>                    |
| 12  | n/a  | 80% ≤ E <sub>2</sub>                   | 90% ≤ E <sub>3</sub>                    |
| 11  | n/a  | 65% ≤ E <sub>2</sub> < 80%             | 85% ≤ E <sub>3</sub>                    |
| 10  | n/a  | 50% ≤ E <sub>2</sub> < 65%             | 85% ≤ E <sub>3</sub>                    |
| 9   | n/a  | E <sub>2</sub> < 50%                   | 85% ≤ E <sub>3</sub>                    |
| 8   | n/a  | n/a                                    | 70% ≤ E <sub>3</sub>                    |
| 7   | n/a  | n/a                                    | 50% ≤ E <sub>3</sub> < 70%              |
| 6   | n/a  | n/a                                    | 35% ≤ E <sub>3</sub> < 50%              |
| 5   | n/a  | n/a                                    | 20% ≤ E <sub>3</sub> < 35%              |



**Typical Distribution of Particles in Ambient Air**

Filters with a MERV 13 and higher typically utilize a prefilter to maximize their service life and minimize their life cycle cost.

Tri-Dim can help in the process of filter selection by having one of our factory-trained sales representatives assist in the process of identifying the 'target' particle size and then develop those identified objectives into a filtration protocol. Tri-Dim offers this service free of charge.

Call 1-800-458-9835 to get the name of the nearest Tri-Dim representative.

Tri-Dim Filter Corporation is committed to continual product development – all descriptions, specifications and performance data are subject to change without notice.

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