

Examples of Data Interpretation for Particle Reduction in Various Filter Efficiencies

Table A. Condensation PC – particles reported per cc – range 0.02 to 1.0µm

Condensation PC*	Outside air particles	After filter PC	Percent reduction
MERV** 12 filters	55000	11000	80
MERV 14 filters	55000	5500	90
MERV 16 filters	55000	50	99.97

Note: Condensation particle counts are reported as particles per cubic centimeter ranging from 0.02 to 1.0 µm.

*PC = particle counts

**MERV = minimum efficiency rating value (current ASHRAE rating system).

[ASHRAE: American Society of Heating, Refrigeration and Air-conditioning Engineers]

Table B. Optical Particle Counter – particles reported per cu.ft.- range ≥0.5µm

Optical PC*	Outside air particles	After filter PC	Percent reduction
MERV** 12 filters	120000	24000	80
MERV 14 filters	120000	12000	90
MERV 16 filters	120000	36	99.97

Note: Optical particle counts are reported as particles per cubic foot ranging ≥0.5 µm.

* PC = particle counts

**MERV = minimum efficiency rating value (current ASHRAE rating system).

The numbers above reflect an approximate reduction. These numbers will vary considerably from second to second as the environment is less controlled due to variations in ambient particle generation both indoors and outdoors. Because of this, the important reduction is in the order of magnitude reduction and not necessarily in the integer.

For example, with a 90% efficient filter and an outside particle count of 100000, it is expected that the particle count after the filter would be approximately 10000 (one tenth of the outdoor concentration). Because of the variability in conditions, an indoor particle of higher or lower than 10000 could be expected (e.g. 15000 or 5000, respectively).