

## Retention Efficiency

One of the most confusing terms in Filtration is Retention Efficiency!

Virtually all suppliers of products to filter solids from liquids or gases advertise them as having certain filtration efficiency. They sometimes use just the words "Absolute", "Nominal", "Sterilizing" or efficiency rating such as 95% or Beta 5000. When evaluating several different filters with similar ratings, users find the performance considerably different. Why is this?

There are only a few standard test procedures e.g. HIMA sterilizing grade filter guideline and NSF approval tests for potable water filters. They are used to rate filters for a few specific applications, e.g. bacteria or cyst removal.

Most applications require the filter to just remove dirt or particulate. The ratings are then only very general guideline. This is due to the following:

- Variable test procedures from one supplier to another
- Filter efficiency/test procedure dependence
- Manufacturer specific rating system

Without a standardized test procedure and rating system, how should a user try to pin the manufacturer down as to how their filters are rated?

The best way is to obtain the filters typical efficiency curves, see the graph below

### Microns

It is often helpful to obtain a copy of the test protocol used by your filter supplier. Only a comparison of the actual versus expected filtration conditions and results will help assess the applicability of the test and one supplier versus another.

Last, run trials with the filters that best represent your expectations. This should be done using a parallel challenge with equivalent flow rates and/or pressure drop. This will go a long way to determine the best filter for your application

Filter efficiency is only one measure of performance and not the only important parameter.

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