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Micron Ratings for Filters

With the vast array of filtration systems that are on the market for water recovery, it is important to understand how each operates and what they provide to the user in terms of quality of water produced. This information provided is intended to help you to determine which type is best suited to your application.

Centrifugal Separation

In centrifugal separation, centrifugal force is used to separate solids from the liquid stream. In separation, the difference in specific gravity of the solid and the liquid is the most important factor. Thus, the greater the differential, the more effective the separation will be. Generally, separation is used to remove large solids (50 micron or higher). Separators are often used together with a filter as a pre treatment to remove larger particles from the water stream. Rarely can a separator provide low particle retention (under 50 micron) due to the nature of their construction. **These units are not truly filters due to the fact that no restricting element or media is used in their operation.** As stated above when removal of larger particles from the reclaim stream is sufficient for the application, separation can be the logical alternative. Particular attention to designed pressure and flow must be considered when using Centrifugal separation. The vortex created within the separator is most efficient when at specific parameters. Any obstruction or interference within the separator can allow larger particles to penetrate the process.

Nominal Filtration

This type of filtration is based on the size of particulate removal under certain set conditions at a laboratory testing site. This efficiency will vary from 50-98 percent depending on the manufacturer and methods

used to base the rating. Therefore, a system that advertises a 5 micron removal rating may only remove 50 percent (Or less if laboratory standards are not adhered to, which is a rarity in the “real world”) of particles that size, with much larger particles passing through and entering the reclaim stream. With this type of filtration many factors can alter the efficiency, such as flow rates, placement of the filter in the reclaim stream, contaminant volumes to name a few. Filter bags fall into this category of filtration. When choosing systems like these make sure that it will fit your application and that the system is going to mesh with the application it is being considered for use.

Absolute Filtration

For applications that need a constant quality of water, absolute filtration is the wise choice. The definition of absolute filtration is 99.9 percent (3-log) rejection at the specified micron rating. This means that all particles larger than the micron rating and 99.9 percent of the particles of the micron rating will be removed. For example, if 1000 25 micron particles are passed through a filter with an absolute rating of 25 microns, 999 will be removed. The absolute rating is the most reliable rating and there are no gray areas when it comes to this type of rating (as there is in the other forms mentioned above). This style of filtration will ensure that the quality of water will remain constant no matter what type of particles or how many particles are passed through the filter. Flow rates do not affect an absolute filter as they would in separation or nominally rated systems.

Conclusion

All of these methods have a place in water recovery, depending on the application and desired outcome any one or a combination of these methods will give the user water that can be used many times over in the process without altering the quality of water that is being provided for the process it is intended. The Con-Serv Manufacturing Product line includes designs that incorporate any or all of these Technologies. Our design team can develop solutions to meet the quality of the water required or cost constraints associated with your Carwash Project.