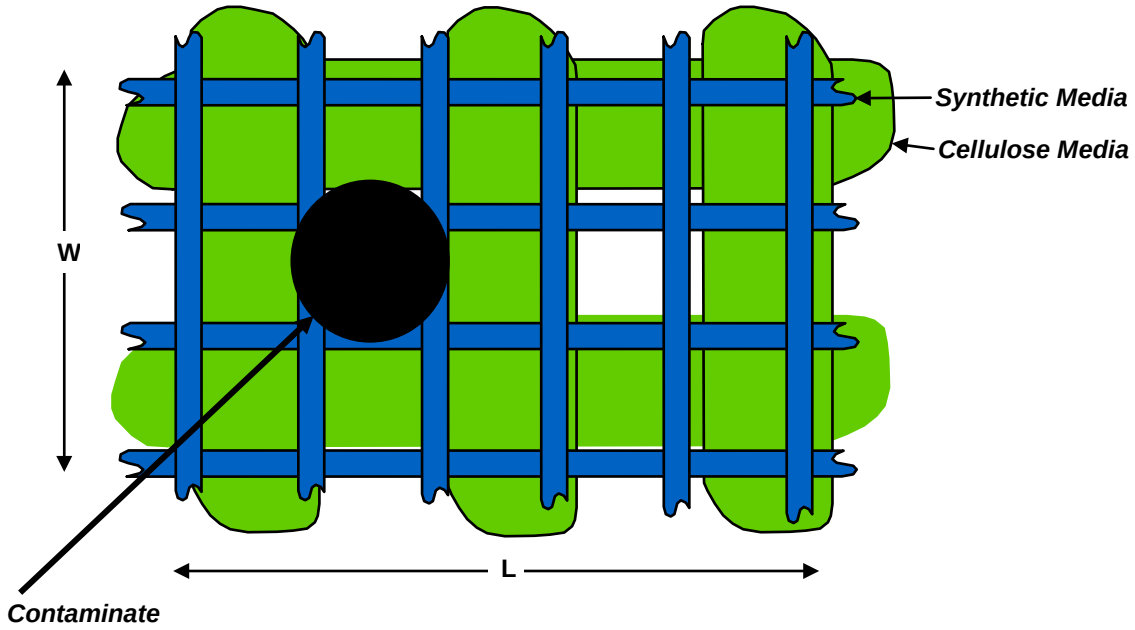
Filter Manufacturers Council

Filter Knowledge, Unfiltered

Technical Service Bulletin 09-1

Synthetic vs. Cellulose Media and Usage in Liquid Filtration

The different media technologies used in liquid filters help to achieve better efficiency, capacity and balance. Cellulose, synthetic and meltblown technologies are used to meet application needs. Cellulose media is made from wood pulp fiber and is similar to paper making technology. It is a very cost effective media and is used in lube, fuel and coolant systems. Synthetic media is made using polymer or glass fiber technology. These are man-made fibers and are also used in lube, fuel and coolant systems. Meltblown media is a polymer fiber made using a blown process technology. This media has good contaminant retention capacity and water separation performance. It is only used in fuel applications.



Cellulose media consists of large diameter fibers. Synthetic media consists of very thin fibers. In the diagram above, the same average pore size is used to compare cellulose media and synthetic media. There is more area for fluid flow in synthetic media than the

cellulose. In addition, synthetic media is less sensitive to water than cellulose media, which tends to swell and restrict flow. Therefore, synthetic media will have lower restriction than cellulose media of the same efficiency rating.

As these media are loaded with contaminant, we see another advantage of the synthetic media increased flow area. Contaminant that plugs up 50% of the cellulose media surface area will only plug 10% of the synthetic media area. The result is much lower restriction in the synthetic media when compared to cellulose media for the same level of loading.

Another advantage of synthetic media is its ability to load contaminate through the depth of the media. Contaminants tend to load on the cellulose media surface. This is another way synthetic media technologies increase filter capacity.

The choice between cellulose and synthetic is a balance between efficiency and capacity. It is also a balance between economy and performance. Each application is unique and should be investigated as such.

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