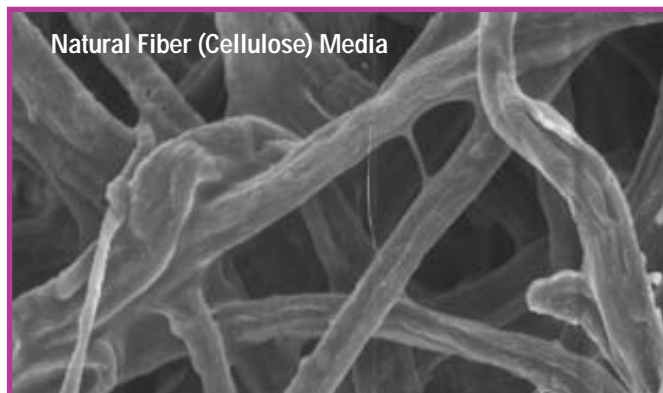
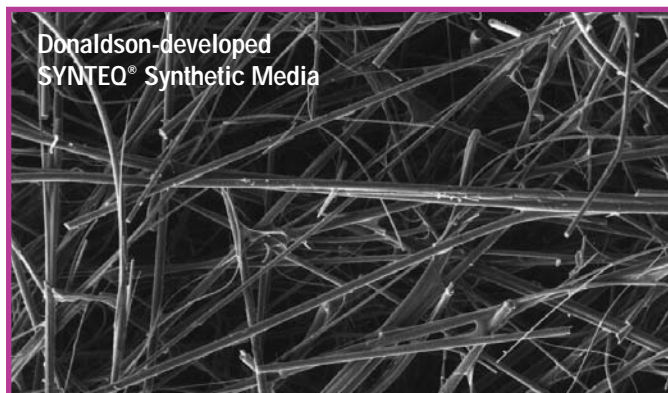


A Closer Look at MEDIA — the Heart of the Filter

Choose Donaldson Synteq® synthetic, natural fiber cellulose, or wiremesh to obtain exactly the cleanliness level you need.



Media is, of course, the main factor influencing pressure drop; indeed, it causes pressure drop. That's why having a low-friction, high-flowing media is so important. See the differences in media in these close-up photos from our scanning electron microscope in which the media mat is magnified hundreds of times.

Above left you see Donaldson-developed *Synteq® synthetic* filter media with its smooth, rounded fibers consistently shaped so that we can control the fiber size and distribution pattern throughout the media mat, and still allow the smoothest, least inhibited fluid flow.

Consistency of fiber shape allows the maximum amount of contaminant-catching surface area and specific pore size control. The result is media with predictable filtration efficiencies at removing specified contaminants (i.g., 10µm) and maximum dirt holding capacity.

The low resistance of Synteq® to fluid flow makes it ideal for synthetic fluids, water glycols, water/oil emulsions, HWCF, and petroleum-based fluids.

In the photo on the right, you see magnification of our natural fiber *cellulose* media.

Note that the natural cellulose fibers are larger than synthetic fibers and jagged in shape, so controlling pore size is difficult and there is less open volume.

Lower beta ratings mean there are smaller pores in the media; smaller media pores cause more flow resistance, in turn causing higher pressure drop.

While cellulose provides effective filtration for a wide variety of petroleum-base fluids, in certain applications it results in poor filtration performance as compared to synthetic filters.

Not pictured: Wiremesh media. Made of stainless steel for durability and long life, Donaldson wiremesh media is designed extra tough for environments where large, rough particulate needs to be filtered.

Donaldson also offers *water removal media*. This is media formulated with dessicants and resins to remove moisture and condensation from petroleum-based fluids. (For concentration of water greater than half of 1 percent [.005%] in the hydraulic oil, we recommend using a vacuum dehydrator unit.)

Further media discussion can be found in our Technical Reference Guide, “the blue pages” of this catalog.

Donaldson Filter Media Efficiency Ratings Per ISO 16889 Test Standards

ISO 16889 is the international standard for Multi-Pass Testing to determine the efficiency (beta rating or beta ratio) and the dirt-holding capacity of the filter element. It replaced the ISO 4572 test standard.

Donaldson filter media has been re-tested per the new standard and the current beta ratios are shown at right. New beta ratios are shown at 200 and 1000, with a (c) to indicate test adherence to the ISO 16889 standard and traceability to NIST test dust.

Learn more about ISO 16889 in the Blue Pages of this catalog.

| Fluid to be Filtered | Recommended Media |
|----------------------------------|-------------------|
| Petroleum-based | Synteq Cellulose |
| Phosphate Ester | Synteq |
| Diester | Synteq |
| Water Glycol | Synteq |
| Water-Oil Emulsion | Synteq |
| Biodegradable Fluid | Synteq |
| HWCF (high water content fluids) | Synteq |
| Coarse Filtration | Wire Mesh |

NEW Donaldson Filter Media Efficiency Ratings Per ISO 16889 Test Standards

| Media Number | FORMER Rating Beta _x =75 <small>per ISO 4572</small> | NEW Rating Beta _{x(c)} =200 <small>per ISO 16889</small> | NEW Rating Beta _{x(c)} =1000 <small>per ISO 16889</small> |
|--------------|---|---|--|
|--------------|---|---|--|

Donaldson Synteq® Synthetic Media

| | | | |
|--------|------|----------------------|----------------------|
| No. ½ | 2µm | <3µm _(c) | <3µm _(c) |
| No. 1 | 3µm | 4µm _(c) | 6µm _(c) |
| No. 2 | 5µm | 5µm _(c) | 9µm _(c) |
| No. 2½ | 10µm | 8µm _(c) | 10µm _(c) |
| No. 3 | 15µm | 12µm _(c) | 14µm _(c) |
| No. 4 | 16µm | 15µm _(c) | 20µm _(c) |
| No. 6 | 13µm | 10µm _(c) | 13µm _(c) |
| No. 9 | 22µm | 18µm _(c) | 23µm _(c) |
| No. 16 | 37µm | 16µm _(c) | 22µm _(c) |
| No. 20 | 40µm | >50µm _(c) | >50µm _(c) |

Donaldson Cellulose Media

| | | | |
|--------|------|---------------------|----------------------|
| No. 3 | 16µm | 18µm _(c) | 24µm _(c) |
| No. 10 | 25µm | 19µm _(c) | 23µm _(c) |
| No. 15 | 35µm | 25µm _(c) | 29µm _(c) |
| No. 25 | na | 32µm _(c) | >40µm _(c) |

Donaldson Wire Mesh Media

| | | | |
|---------|---------------|--|--|
| No. 44 | 45µm nominal | | |
| No. 74 | 75µm nominal | | |
| No. 149 | 150µm nominal | | |