# Data Sheet

## P84 Polyamide Composite Filter Media

**During its early development stages**, the P84 polyamide fiber was discovered to possess outstanding filtration properties. This fiber's unique tri-lobular shaped cross-section and resident electrostatic charge results in a high performance filter media that is very resistant to blinding, because dust collects on the surface of the fabric.

**P84 Composite Filters** are manufactured by fusing a 0.3 - 0.5 mm thick top surface layer of the P84 polyamide fiber to a bottom layer of conventional fiber. P84 Composites possess filtration properties as good as fabrics made from 100% P84, *but at a significantly lower price.*

Conventional filter media depend on **depth type of filtration** or **filter cake** to separate dust particulate from the air stream; it is actually the "cake" of dust particles trapped in and on the fabric that allows conventional media to filter efficiently. Depth type filtration works well only if the velocity through the media is kept relatively low, and the design engineer must allow for a suitable **air to cloth ratio (ACR)**. If the filtration velocity is too high, particulate is driven deep into the fabric and locked in, so that it is not removable by on-line bag cleaning. Also with depth type filtration, any free moisture, such as condensate, can act as a binder to the particulate decreasing the fabrics permeability and **blinding** the filter.

With **surface filtration**, as the name implies, dust separation occurs almost totally on the surface of the filter media. With surface filtration there is little, or no dust migrating into the matrix of the filter media, and so surface filtration filters are far more resistant to blinding. These fabrics can achieve excellent results with a higher ACR, and under more adverse conditions, and still maintain a very stable operating pressure drop across the filter media.

Currently there are only two filter media that possess surface filtration abilities: the **P84 Composite** and **GoreTex®** type membrane laminated media.. GoreTex® type filter media are fabrics treated with a 1 or 2 *micron* thick membrane of PTFE (Dupont Teflon®) and so are highly susceptible to damage - even a *single scratch* in the membrane can result in a "hole" through which fine particulate will migrate. The P84 Composite cannot be damaged so easily in this way.

**The highly profiled P84 fibers cover a large surface area. Dust collection occurs on the surface of this media and will not easily blind.**

# Benefits of the P84 Composite Filter

**The P84 Composite surface filtration media** achieve the following benefits:

1. **Excellent separation efficiency**. P84 Composites have an ASHRAE rated efficiency of 99.9986% at 0.4 microns. This is similar in performance to GoreTex®.
2. **Superior differential pressures**. The velocity across the media can exceed the recommended minimum for GoreTex® *by up to three times* without affecting its release characteristic or its filtering efficiency!

| Air Velocity (Ft/MIN) | Air Velocity (M/MIN) | Separation Efficiency (%) |
|---|---|---|
| 4 | 1.22 | 99.996 |
| 5 | 1.52 | 99.996 |
| 6 | 1.83 | 99.996 |
| 7 | 2.13 | 99.996 |
| 8 | 2.44 | 99.997 |
| 10 | 3.05 | 99.996 |
| 12 | 3.66 | 99.997 |
| 14 | 4.27 | 99.997 |

3. **Lower capital equipment costs.** A high efficiency with excellent release and low pressure drop allows the design engineer to use smaller, *less expensive dust collectors*.
4. **Less frequent cleaning**. Low differential pressures allow on-line filter cleaning systems to operate at less frequent intervals. *This reduces the wear and dramatically increases the service life.*
5. **Lower operating air pressure.** Low media differential pressures allow on-line filter cleaning systems to operate at a lower air pressure and to operate at a *lower cost*.
6. **Excellent release characteristics.** The P84 Composite is a surface filtration media, and it is exceptionally resistant to blinding. This results in a *superior service life.*
7. **Many different substrate media** allow us to *design solutions for your application.*



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