Media selection is the key component to a successful and efficient dust collection system. To select the filter media that will give you optimum efficiency, you need to know the dust’s particle size, amount of dust in the airstream, volume of air in your system, maximum operating temperature, gas-stream chemistry, air-to-cloth ratio, can velocity, fabric-filter cleaning method, inlet design, grain loading, and moisture content, particle abrasiveness, and any other characteristics that you can measure or estimate. Once you’ve collected this information, you’re ready to make a proper filter media selection. The following list describes dust collection problems that can result from poor media selection.

• Reduced bag or cartridge life.
• Inadequate airflow at the pick-up point.
• High differential pressure due to insufficient bag or cartridge cleaning.
• High pressure drop resulting from inadequate resistance across the media to the fan, also referred to as the air-to-cloth ratio. Too high a ratio can reduce the total airflow rate attainable by the system fan. A high ratio can also drive your material particles into and through the media’s pores, increasing the possibility of leakage.
• Abrasion issues, leading to hole formation, fiber breakdown, and seam deterioration in the filter.
• Dust bypass, which can occur if the average dust particle’s micron size is small enough that a high percentage of the dust will pass through the media and into the open air.

All of the above problems can cause a sudden and unexpected bag or cartridge failure and lead to unplanned downtime. You can avoid these problems by consulting with experienced dust collection experts who will help you evaluate your needs and by sending dust samples to the dust collector manufacturer for testing. A growing list of filter media and finishes can solve the problems listed above and ensure your dust collector’s efficient operation. The key to success is identifying the conditions that are present and matching them to the proper media.

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