

AIR FILTERS - PART 2

We have a special guest for this article. Scotty King is a friend of mine who develops air filters for the auto/ industrial industry. I wanted to do a “question/answer” with Scotty to get straight answers regarding performance filters for tractor pulling. If you have done any amount of internet searching, it is difficult to get technical answers regarding filter material. Let’s see what Scotty can teach us!

For tractor pulling, do you prefer foam or gauze material and why? Personally I prefer to use oil bath systems. As long as the oil is clean and the pressure drop (restriction) isn't too high it performs best. It also give you a nice lubricant to help the carb out. My second choice is gauze because I have more experience with it than foam.

Is oiling a filter necessary or are they just trying to upsell me? “Seasoning” a filter helps create smaller pore size and you control how the filter is loaded. If you didn't pre-oil a filter that needs to be oiled, the filter loading would change causing the filter media to degrade. It would not be a reusable filter again because the fibers would get plugged in a way that is difficult to clean. No I don't think they are up selling you at all.

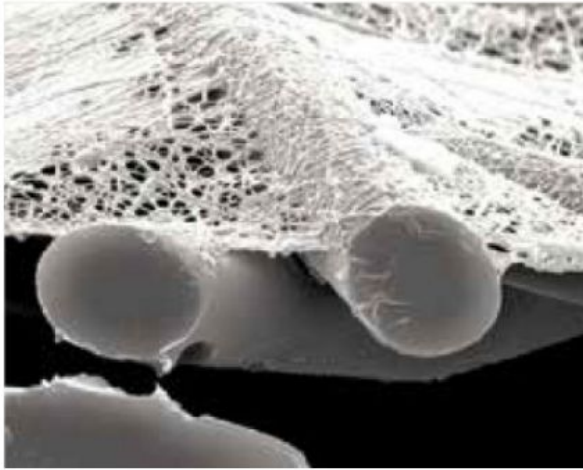
Do I have to use air filter oil or can I use engine oil? You create a smaller pore and prevent dust from embedding into the filter material. If you use the wrong oil it will reduce the life and filtering. Don't try saving money on this... buy the correct oil.

How do I know when to clean my air filter? I was told gauze filters work better when dirty. Pressure drop is KING, you should monitor pressure drop and it will tell you when to change. Yes most filters are more efficient when dirty but the pressure drop (restriction) goes up and you run the risk of rupturing the media (high pore velocity).

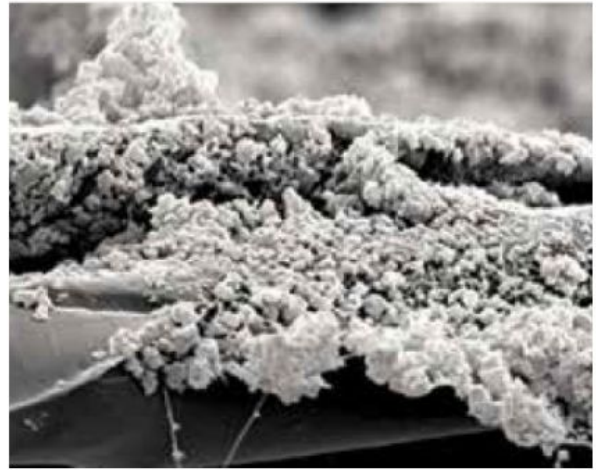
How does an average person monitor pressure drop? Some filters such as those found on modern diesel trucks have an air flow monitor. For pulling tractors pressure drop is difficult to measure so visual inspection is key.

Is one type of filter material better for holding dirt than others? Of course, but it all depends on the application. I personally like natural fibers with synthetic added to air supply side. Filter media is unique and the art of making filter media is take time and lots of failures. K&N type filters use cotton gauze and Donaldsons Ultra-Web is used on many new trucks... it is an excellent filter media.

Clean Ultra-Web Filter



Surface-Loaded Ultra-Web Filter



Is K&N brand gauze filters really better than others like Spectre? In my opinion yes, K&N has taken the time, money and research to develop a media that works. K&N also has the repeatability and reproducibility that most don't. I really like K&N but I also like Donaldson, Mann and Hummel, Freudenberg and CLARCOR.

Why do gauze filters use efficiency to compare filters, and foam filters use PPI (pores per inch)? Is there a standard for measuring filter quality? Because one is telling you efficiency and the other is telling you how small the pores size is. I can make a filter with really small pore size with terrible dust hold and big pressure drop and still have poor efficiency. To get a filter that is high efficiency, low pressure drop, and great dust holding capacity is really hard.

Understanding the physics of air filtration is critical to performance. I have spent hours talking with Scotty about filters, carburetors, and tuning. Hopefully you are starting to realize that filter material, size, location, and oiling all affect air flow and power. Thanks Scotty for teaching us a few new things about air filters!