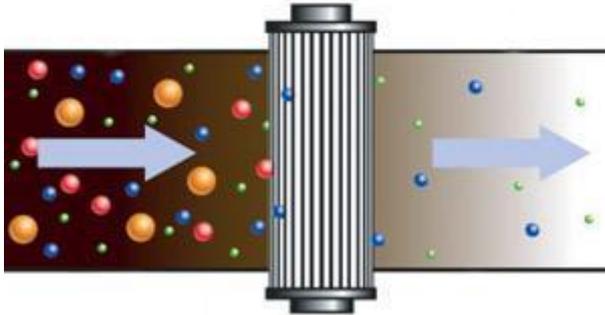


Can Fine Filtration Extend Oil Life?

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Tags: [oil filters](#), [contamination control](#)



"There's a company that claims to extend oil life by filtering contaminants down to 1 micron. Is there any risk of additive depletion by using such fine filtration systems? Is this type of filtration relevant to slow down the process of base number depletion/nitration in the case of gas engines?"

The claim of extending oil and machine life by utilizing fine filtration (less than 5 microns) is based on real-world experience and case studies. A good additive package should be fully blended and dissolved in the base oil. Therefore, fine filtration should not be able to strip out any additives.

However, many additives are polar in nature and have the ability to cling to particles. Many do so to fulfill their protective roles within lubricants. Examples for combustion engines include detergent and dispersant additives. These are polar and designed to cling to particles and water in the oil to hinder them from merging into larger particles or water droplets that could cause major issues. By doing their job, these additives will deplete over time by filtration/separation or simply fall to the bottom of the oil reservoir. Once they attach to the particle and the particle is removed by filtration, the filter does remove the additives, but it was just doing its job. The additives would have been depleted anyway.

Anti-foam additives can be separated as well. These larger insoluble molecules typically are larger than the 5-micron threshold for fine filtration. They are also polar and may cling to any filter fiber through which they are passed. The good news is that it would take extremely fine filtration to remove these insolubles, which would also eliminate the main cause of a foaming issue in the first place.

Base number depletion can be attributed to several things in a combustion engine. The two most prevalent are acid formation from combustion byproducts and oxidation. While having a cleaner lubricant can't ward off an impending attack from old, worn rings and liners introducing combustion byproducts to the lubricant via blow-by, it can help prolong the onset rate of oxidation. Without exception, the cleaner, cooler and drier a lubricant is, the longer it will last in terms of oxidation.

Remember, fine filtration is always better than no filtration or poor filtration, since the additives will be depleted with or without filters. Plus, your machine and oil life will improve vastly with fine filtration.