



Understanding Oil Filtration & The Vito Advantage

While most people understand that filtering oil is performed to extend the life of oil and to improve the taste of deep fried product most people have little understanding as to the processes that are taking place and how to maximize the benefits of filtration. This brief summary points out the most important facts, along with the most misunderstood aspects of oil filtration.

1. The Basics

Oil starts to break down and degrade from the moment the seal is removed from the can. The reason for this is oxygen breaks down the bond that holds the oil molecules together. Separation of the molecules is what causes oil deterioration. This process occurs regardless of whether oil is filtered or not.

2. Accelerated Oil Deterioration

When frying the deterioration process is accelerated for various reasons. Filtering the oil reduces the speed with which the oil deteriorates, prolonging oil life and at the same time producing better tasting deep fried product. Listed below are the 2 most important aspects of oil maintenance:

a) Frying Temperature

The optimum frying temperature is 175° Celsius. Frying at temperatures in excess of this temperature will accelerate oil decay significantly as the oil burns itself. *Frying at temperatures in excess of 185° Celsius will result in nil extension of oil life no matter how much filtration is carried out.* The only benefit of filtering in this scenario is to remove the bad tasting carbon particles from the deep fried product to provide a better tasting product.

b) Carbonization

The single biggest contributing factor in the acceleration of oil deterioration is the carbonization of left over food particles that remain in the deep fryer oil. When frying, crumbs and other such small particles break off the food being fried and remain in the deep fryer oil. These particles are then constantly being deep fried over and over again in the hot oil to the point where they burn up or carbonize. Regular filtering to remove these particles is crucial to slow down this process and prolong the life of the oil.

3. The Cool Zone Misconception.

Most people are of the understanding that extending the life of the oil by filtration refers to the removal of all particles such as chips, large crumbs, etc from the cool zone that is located in the bottom of the fryer. However, *these particles contained in the cool zone have little or no effect on the deterioration of the oil.* The removal of these particles from the cool zone has little effect on the life of the oil. The very reason why deep fryers are designed with a cool zone is so that left over particles sink to the bottom of the fryer and into the cool zone. As the

name “cool zone” suggests, the temperature of oil in the cool zone only reaches approximately 85° Celsius compared to 175° Celsius in the upper part of the fryer where frying occurs. Particles do not carbonize at 85° Celsius! Carbonization is taking place higher up in the fryer out of the cool zone where the oil is double the temperature. Carbonization is taking place on the particles that are too small and lack sufficient mass due to the thick viscosity of oil and therefore do not sink into the cool zone. These are the particles that need to be removed by filtration to maximize the life of the oil.

4. Filter Twice a Day to Achieve Maximum Oil Life

In order to maximize the life of the oil regular filtration of the oil is necessary. By filtering on a regular basis the volume of small particles carbonizing is kept to a minimum. In order to achieve this, filtration is recommended twice per day. In small volume kitchens filtration may be reduced to once per day. Filtering less frequently than this will significantly reduce the benefits of filtering, resulting in minimal extension to the life of the oil. ie. Filtering oil once every 2-3 days will have little or no effect on extending the life of the oil. The only benefit this will offer is the reduction of bad tasting carbon on the fried product.

(It should also be noted that filtering more than twice per day is not recommended as the oxygen content in the oil increases significantly accelerating the breakdown of the oil molecules.)

5. The Disadvantages of Traditional Filtration Machines

The majority of filtration machines sold are of the floor standing type. These machines rely on gravity to drain the oil into the filter paper and then pump the filtered oil back into the fryer. Although there are variations in the effectiveness of these machines they all suffer disadvantages that Vito does not. These include:

- a) **Inconvenience** – Filtering of the oil is time consuming. It takes approximately 1hr to filter a fryer. The oil usually needs to be allowed to cool first while hoses and clamps need to be fitted. All the oil must then drain slowly through the filter paper and then be pumped back into the fryer. It then takes about 10-15 minutes for the oil to reach frying temperature again. This process is really only possible at the end of the days trading. Therefore most users of these machines will only filter once per day at best. In fact given the mess, safety concerns and time taken most kitchens loathe this task and filtering is subsequently performed every 2 or 3 days effectively minimizing any extension to the life of the oil.
- b) **Poor Filtration** – Considering that the oil must first be allowed to cool for safety reasons, the oil loses viscosity. The thicker the oil becomes due to cooling the coarser the filter paper must be in order for the oil to pass through it. In addition, these machines usually only rely on gravity to force the oil through the filter paper. Filtration papers are usually 30-50 Microns for these machines. Therefore most of the finer more critical particles that cause carbonization simply pass through the filter paper and back into the fryer.
- c) **Large & Bulky** – These machines are usually large, bulky and dirty. Storage is often a problem and they usually leave a trail of oil when moved or stored.

6. The Advantages of Vito

Vito revolutionizes the way oil is filtered. Here are the benefits:

- a) **Convenience** – Vito is convenient. Vito is small, lightweight and hand held taking only 4 minutes to complete a full filtration cycle in a 30 litre upright fryer. The fryer is then ready for immediate use as Vito does not require the oil to cool down before filtration. Vito is then stored in the specifically designed bucket in a small handy location. Should Vito need to be cleaned this can be done so by washing in the dishwasher. *Filtering twice per day is easily achieved.*
- b) **Excellent Filtration** – Vito filters particles to 5 Microns, 6 to 10 times smaller than nearly all other floor standing filtration machines. The reason Vito can do this is due to the use of a high pressure pump that forces the oil through the filter paper. In addition, filtering is performed with the oil at frying temperature (175° C) when viscosity is at a maximum. This allows the use of a far finer filter paper removing all of the small particles that cause the majority of carbonization. Finally, as Vito works by sitting in the fryer the oil in the fryer passes through the filter paper 10-15 times in the 4 minute filtration process.
- c) **Vito will Clean the Cool Zone** – Although removal of particles from the cool zone has minimal effect on maximizing oil life, Vito will keep the cool zone clean with regular filtration.
- d) **How much can oil life be extended?** - By filtering twice per day with Vito, life of the oil can be extended by:
 - 2 – 3 times when frying vegetables, poultry & meats
 - 1.3 – 2 times for seafood

