Fry Optimization Overview

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1. What Is Fry Oil Optimization?

Fry Oil Optimization is a combination of quality and economics. The purpose of this Design Response is to provide the restaurateur with ideal solutions and best in industry products to improve and maintain the highest quality of signature dishes while significantly reducing total Fry Oil and related costs.

2. Common Causes of Fry Oil Degradation

**Carbon:**
Ensure fryer is always clean and free of carbon. This is achieved by:
1. Continuously skimming the surface of the oil to remove broken chips, shells, and to prevent residual particles from burning and producing layers of carbon on sidewalls of fryer;
2. Filtering a minimum of twice daily to remove burnt sediment from fryer;
3. Boil out fryers prior to initiating Fry Oil Optimization, and continue to boil fryers out once a period or as needed.

**Water:**
Ensure all filtration equipment and components are completely dry prior to filtering. Thoroughly dry fryer after boil out.

**Air:**
Keep fryer covered when not in use.

**Salt/Seasoning:**
Never salt or season fried products directly over fryer.

**Soap/Degreaser:**
Never use soap or degreaser to clean fryer or filtration components. (Hot Water Only!)

**Heat:**
Ensure fryer thermostats are properly calibrated.

3. Cleaning and Maintenance of Equipment

For Fry Oil Optimization it is imperative to maintain a clean and efficient fryer. Ideally the fryer should always be "show room clean". Any carbon build up will rapidly degrade the fry oil, causing poor food quality, increased oil costs, as well as an inefficient fryer not being able to recover and maintain desired temperatures.
During daily filtrations it is recommended to scrape any polymers off of sidewalls of fryers (Never use stainless steel brushes or pads) and clean inside of fryer to reduce carbon build up on and around burner tubes, heat coils, and thermostats, etc.

*** Ensure all seals/o-rings are operational for good seal on built-in filtration systems. This prevents air from being pumped in oil, and allows efficient pump flow rates.

**Recommended Solution:**

Use OSG water soluble boil out: (refer to page 5) A safer, more effective alternative to conventional fryer boil out products. This product is readily available and quantity pricing is available for UFPC. This product is designed for use at the minimum temperature (160F-180F) setting to ensure and comply with safety. The anti-foaming component prevents boil out and water from flowing over on to floor, while still providing the safest and most effective boil product available.

**FRYER BOIL OUT**

New Dissolvable Packets

With Power Crystals To Cut Carbon and Grease Deposits and reduce Foaming

**FEATURES:**

- REMOVES BAKED ON GREASE AND CARBON BUILD-UP
- WILL NOT EFFECT METALS (may discolor Aluminum)
- INCREASES LIFE OF OILS BY ELIMINATING CAUSES OF RANCIDITY

Our BOIL-OUT is a concentrated low foaming cleaner with POWER CRYSTALS, formulated specifically to remove greasy soils, sugar, salts, fats, proteins, and carbonized build up from deep fat fryers.

LABOR SAVINGS -- Save time, with our exclusive NO WASTE dissolvable packets just “drop and forget”. No messy paper or plastics to dispose. Accurate one-cup dose every time, no measuring.

COST EFFECTIVE – Clean fryers help make your cooking oil last longer.
HARD WATER PERFORMANCE -- Formulated with POWER CRYSTALS to perform in the presence of hard water.

**Directions:**
- Turn off fryer, drain oil out of fryer
- Fill fryer with water to the minimum fill line
- Turn fryer on to “boil-out” setting (simmer) just below boil. Do not Boil.
- DROP one 8 oz dissolvable packet into fryer (two packets for fryers over 60# of oil)
- Let solution simmer for 15-20 minutes. DO NOT ALLOW TO BOIL
- Use brush or scrub pads to clean inside of fryers.
- Thoroughly RINSE fryer with fresh potable water and dry.

**USE INFORMATION**
Remove all food and food packaging items from area before using this product.
Dismantle all appropriate equipment parts.
Drain oil from fryer and dispose of properly.
RECOMMEND MONTHLY USE IN EACH FRYER

**HANDLING AND STORAGE:** Store product inside and away from moisture. Keep plastic bag sealed around Boil-Out Packets. Handle packets with dry hands only to prevent damage to package.

DO NOT ALLOW PRODUCT OR SOLUTION TO COME IN CONTACT WITH FOOD OR UTENSILS

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4. Passive vs. Active Filtration

There are two types of filtration: passive and active. **Passive Filtration** is the use of filter media such as paper (40 microns), stainless steel screens (60 microns), and reusable fabric filters (OSG/Masterfil Filters-US made) currently used in KFC, Wing Street) to remove sediment and impurities down to $\frac{1}{2}$ of 1 micron from oil. The most effective passive filtration application is the Masterfil reusable fabric filter. This filter filters sediment and impurities down to $\frac{1}{2}$ of 1 micron, including FFAs (Free Fatty Acids), TPM (Total Polar Materials), yielding cleaner oil for optimal food quality and extended Fry Oil life. This filter can be used for two weeks before discarding. Unlike paper, Masterfil absorbs little to no oil, resulting in fewer Fry Oil top offs, significantly reducing Fry Oil costs, very efficient pump flow rates even with heavy sediment load, and virtually indestructible. Masterfil filters are patented and are NSF certified.

Typical paper filters absorb between 1 to 1.5 pounds of oil with each daily use. That is about $1.20$ to $1.80$ per day in oil cost. Typical “flat sheet” paper filters cost $0.50$ per sheet, and “envelope style” paper cost $0.90$ per sheet. So, the approximate daily cost of filtration with paper “flat sheet style” filters is about $2.30$, and “envelope style” is $2.70$. Masterfil filters absorb only 6 ounces of oil, and since they are changed out only once every 7-10 days, oil savings alone add up to $12.60$ to $18.00$ over that span. When taking into account the amount of oil saved with the discard of a sheet of typical paper, Masterfil filters cost around $1.10$ to $1.60$ per day. That is why we call them “The No Cost Filter”.
Note: The amount of Fry Oil discarded over a two week time with paper filters adds up to approximately 15 lbs. The Masterfil Filter after two weeks of use is essentially a NO COST FILTER!

**Recommended Solution:**
For optimal Fry Oil quality, consistency, and reduced costs across the board, Masterfil Filters are highly recommended for Passive Filtration.

**Active Filtration** is the use of filter powder in conjunction with *Passive Filtration* to remove the liquid impurities from the oil. Filter powders surround suspended liquid impurities in the oil and remove them out of the oil the same way a magnet removes iron shavings from a pile of metal. Using OSG Filter Powder in conjunction with a Masterfil Filter yields the greatest optimal Fry Oil quality and extended Fry Oil life. (See illustration below for oil life study conducted with a major Atlanta based QSR)

![Oil Life Study Results](image)

**Oil Life Study Results**
High Volume National Fast Food Chain  
November 13 – 22, 2011

<table>
<thead>
<tr>
<th>Pot 1 – 10 Days [High Temp 366°F]</th>
<th>Oil Management Plan</th>
</tr>
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<tbody>
<tr>
<td>Before test oil life = 3-4 days</td>
<td>• 12oz. OSG Filter Powder twice per day</td>
</tr>
<tr>
<td>After test oil life = 9-10 days</td>
<td>• One OSG Micro-Channel Filter</td>
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</table>

Pot 2 – 9-1/2 Days [High Temp 364°F]

Pot 3 – 9 Days [High Temp 374°F] Runaway Thermostat Trips High Limit each AM
**Recommended Solution:**

Weigh the option of adding *Active Filtration* (quality over economics). *Active Filtration* and *Passive Filtration* combined will provide optimal Fry Oil and extended Fry Oil life. There is a caveat: *Active Filtration* will significantly add cost, labor, and create an additional compliance in a single fryer operation.

In a single fryer operation use the Masterfil reusable filter (*Passive Filtration*).

**5. Recommended Filtration Procedures**

1. Ensure filter pan is clean and completely dry.
2. Ensure all filter assemblies and parts are accounted for (insert plate and sealer clip for filter envelope).
3. Install Masterfil Filter in accordance with fryer manufacturer's specs. and instructions.
4. Filter oil after frying heavy volumes of product such as after prep, lunch, dinner, and as needed throughout the hours of operation to remove sediment and impurities out of fry oil. Turn fryer off, open drain, and drain fry oil into filter pan. If filter powder is not being used (no need to “polish” oil for 10 min. and taking single fryer out of operation), pump oil immediately back into fryer. Scrape sediment off of filter if needed. Turn fryer back on.
5. Repeat step (4.) after peak rushes, and as needed throughout day.
6. At end of day, and at last filtration of the day, scrape sediment off of filter, remove filter, **DO NOT WASH FILTER!!!** Wash filter pan with hot water only and thoroughly dry.
7. Reassemble filter machine with reusable filter. **DO NOT THROW FILTER AWAY!!!** ***Each filter is to be used for two weeks.***

**6. Methods To Determine Optimal Discard Point**

The most common used methods to determine optimal discard point for Fry Oil are: dielectric meters, chemical test strips, eye dropper color tube, and visual references.

**Dielectric meters** such as an Ebro or Testo 270 measure the FFA (Free Fatty Acids) and TPM (Total Polar Material) The accepted industry standard for determining optimal discard point with a dielectric meter is 25% FFA or TPM (there is a direct correlation). These devices use a dielectric insulator to provide a fairly accurate measurement of the oil’s chemistry. These devices do require constant calibration and are specific to the operator’s specified blend of oil. These devices cost about $500-$600 each.
**Chemical test strips** are easy to use, relatively accurate (if stored to and used properly in accordance with the manufacturer’s instructions) and use a supplied color chart to determine optimal discard point. Test strips are fairly inexpensive.

**Eye dropper color tube test set.** Is relatively inexpensive and we find a good correlation of color to Total Polar Materials. These color tube kits can be supplied by the oil supplier which is specific to operator’s blend of oil. The oil color tube kit is an excellent, inexpensive, and very straightforward visual tool to determine Fry Oil quality.

**Visual Test Methods** consist of several methods: Visually checking oil depth with a fry basket or skimmer, visually check and taste finished fried food product, using a color tube kit supplied by the oil supplier which is specific to operator’s blend of oil.

****For accurate oil analysis, filter oil prior to using any method to determine optimal Fry Oil discard point!!!****

**Recommended Solution:**
For determining optimal Fry Oil discard point at store level: Use a color tube kit supplied by oil supplier that is specific to specified oil. Visually check finished product throughout each day. For Area and Regional Management, a dielectric meter is recommended to “spot check” oil during every store visit, or if having issues with oil quality due to lack of compliance at store level.

7. **Environmental**

Masterfil reusable fabric filters are a “Green” environmental friendly alternative to filtering with paper filters. Paper filters can only be used once, absorb up to a pound of Fry Oil, then discarded into a landfill with the Fry Oil. Masterfil Filters are used for two weeks, absorb little to no Fry Oil, then discarded. Over two weeks if using paper filters, 15 paper filters along with 15Lbs of Fry Oil would be discarded.

Most counties and municipalities have strict FOG (Fats, Oils, Greases) ordinances. The Fry Oil from saturated paper filters eventually finds its way into sewers, storm drains, aquifers, and wells, adversely impacting the environment and resulting in fines, and negative publicity. Used Fry Oil from paper filters can also impact the drains and plumbing in a TB store, resulting in a costly repair and possibly temporary store closure and loss of revenue. Leaking Fry Oil from saturated paper filters also leaks around trash (inside stores) and dumpster area outside causing filthy, unsanitary conditions and can result with an infraction on a store’s health score, again bringing undesired publicity. This is all 100% preventable.
**Recommended Solution:**
Use Masterfil reusable fabric filters, and publicize that your restaurant is using a “Green” Fry Oil Optimization Program to minimize environmental impact, and reduce Fry Oil consumption across the board, while maintaining optimal Fry Oil quality and flavor profile, producing the highest quality signature dishes.

8. **Labor**

Utilizing Masterfil reusable filters as the *Passive Filtration* component in single fryer operations eliminates the need to “polish” or recirculate the oil for 10 minutes.

*Yumoil* to have to remove and carefully dispose while cleaning the filter pan at end of day, saving 10-15 min. of labor.

When cleaning the filter machines filter pan, it is not necessary to remove middle insert of filter envelope and clean everyday. It will ONLY need to be done biweekly when changing the Masterfil filter. This will also save up to 10 min., and the need to air dry overnight on a nightly basis.

Cleaning the fryer during every filtration will lessen the need to perform a very labor intense cleaning at time of scheduled clean, also minimizing the downtime of the fryer.

9. **Safety**

Safety is one of the most critical factors in every aspect of Fry Oil Optimization. Emphasis needs to be focused on prevention of accidents. Accidents result in worker’s comp claims, labor shortage, potential lawsuits, and possibly undesired publicity. Two of the most common injuries when working with Fry Oil are burns and slips/falls. Both are 100% preventable.

Burns can be prevented by limiting contact with hot oil.

**Recommended Solution:**
Always wear safety equipment (oil/heat resistant gloves, apron, eye/face shield) and use proper cleaning utensils/brushes when cleaning hot fryer or filter pan.

Use OSG Water Soluble Boil Out when boiling out fryers. This drastically reduces the risk of burns and scalds since boil out can be done at a minimal temperature well below actual boiling temperature.

If applicable, when discarding old oil, allow oil to cool before transporting it to designated receptacle.
Never overfill fryers!!! This will cause oil to over flow in filter pan resulting in slippery floors, and creating a fall hazard. ***Once heated, the volume of frying oil expands as much as 10%.

Avoid accumulating residual oil in filter pans and improper disposal of saturated paper filters. During cleaning, this oil will always end up on floor creating a fall hazard.

### 10. Quality of Work Life

Making life easier and safer for the personnel tasked with Fry Oil Optimization is the **key component** for the overall success of the program. If the personnel responsible for the filtration operations are not “on board” or take ownership of the program, quality and economics are just three words. We are extremely confident we can assist in accomplishing this.

This response to the Design Brief provides education, awareness, and optimal solutions by specifying our best in industry proven products, along with the foodservice industry’s most experienced Fry Oil consultants to absolutely ensure the success of your foodservice program.