

Facts on Fit Frying: The Impact and Benefits for Foodservice

■ EXECUTIVE SUMMARY: JUST THE FACTS

There's no doubt about it, fried foods are more popular than ever. In fact, the NPD Group, a New York-based consumer research firm, reports that chicken nuggets and French fries are among the 10 fastest-growing foods at restaurants – right along with entrée salads.¹ This illustrates the duality of today's consumer when it comes to food choices. They want both lighter offerings as well as fully indulgent fare – sometimes all in the same meal.

The Fit Frying Program was created by the experts at Frymaster LLC, an Enodis plc company, specifically for operators' menuing fried foods. It should also be of interest to consultants, as well as equipment dealers and specialists, who serve the foodservice industry. The program seeks to provide education on the principles that ensure fried foods are prepared and served in a manner that delivers maximum taste while being as health conscious as possible. The Fit Frying Program is based on five underlying principles:

- finding the right fryer;
- selecting the right oil;
- selecting the right food;
- using best practices or “right” cooking processes; and
- providing the right maintenance.

■ THE RIGHT FRYER

The first step toward fit frying in the Fit Frying Program is to find the right fryer. This will not only help you produce higher-quality and more healthful foods, it will also extend the life of your oil. To find the perfect fryer for your operation, evaluate your menu to determine which kind will best suit your needs (see Table 1). When it comes to being “fit,” there are essentially two types of fryers – those with sediment zones and those without.

In The Zone

Sediment zones, or cold zones, optimize the fry cycle by allowing carbonized contaminants from the oil to fall out – or precipitate – into a space below the cooking area of the fryer, which is more temperate and less turbulent. Cold zones offer several benefits, including ensuring food quality and promoting oil longevity. When sediment is captured in the cold zone, the chemical reactions that deteriorate the oil quality and contribute to off-flavors in your finished product are reduced. Trapping sediment also enhances the filtration process by making it easy to remove the collected sediment from the frypot.

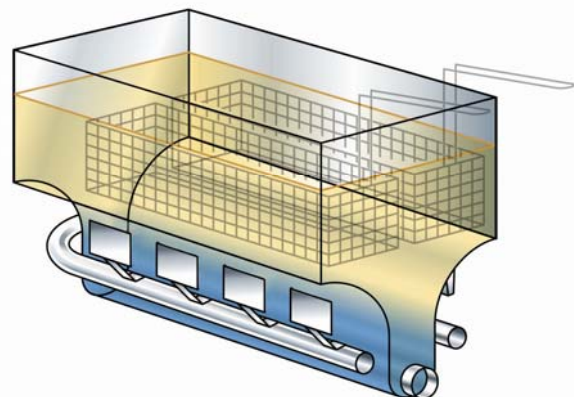
Some Fryers Have Zones...

Open-pot fryers (see Figure 1) have deep sediment zones. Considered multi-purpose units, they perform well in virtually all frying applications and excel with light to

medium battered items, like French fries and prepackaged foods. The construction of these fryers allows for the best visual monitoring of sediment status, makes them generally easier to clean and gives them the longest oil life cycles. Across the total fryer landscape, the open-pot models generally score highly with regard to food appearance and taste, overall equipment performance, ease of maintenance and oil longevity – all factors that add up to fit frying.

Tube-style fryers have wider sediment zones that are located below the burners, and make a good alternative

Figure 1: Open-Pot Fryer



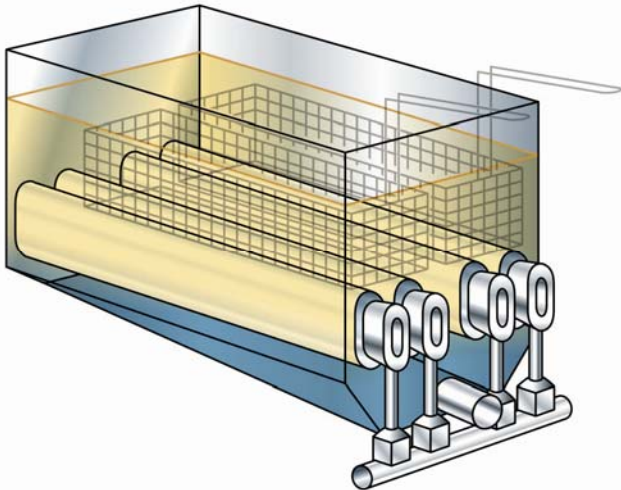


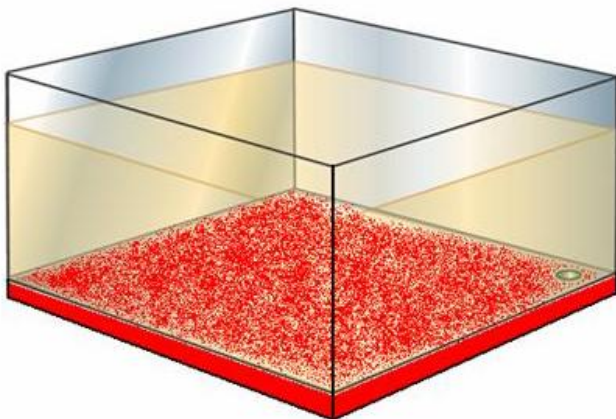
Figure 2: Tube-Style Fryer

general-purpose choice. Foods that are heavily battered or breaded, like fresh fish and onion blossoms, are better suited for this type of equipment. The wide sediment areas allow ample space for particles to settle and accumulate. However, because the heating tubes are generally fixed in place, this type of fryer can be more difficult and time consuming to clean.

...Some Do Not

Flat-bottom fryers are generally used for specialty foods – usually those that float on top of the oil during the fry cycle, such as onion rings and fried fish. Because a flat-bottom design lacks an area devoted to capturing food particles, sediment is in direct contact with the heat-conducting fryer bottom, exposing them for longer periods of time to the highest temperatures in the frypot. This can lead to more rapid oil breakdown, increased carbonization

Figure 3: Flat-Bottom Fryer



and faster formation of contaminant compounds in the oil. Patrons may complain about the appearance of “black specks” on food surfaces, or an “off” taste that can be attributed to carbonized sediment.

Other Fryer Features to Look For

Beyond the fryer’s cold zone, other fryer features can also help maintain food quality and maximize oil life, and even help safeguard the environment. Today’s increasingly high-technology fryers have advanced oil temperature management systems, integrated fryer controls and automated oil replenishment capabilities. Built-in filtration systems make filtering quick, easy, safe and convenient, increasing the likelihood that all-important filtering actually takes place. These features can ensure food quality by reducing the contaminants that transfer off-flavors and the amount of oil absorbed by foods, and extend oil life by optimizing frying conditions. And today’s ENERGY STAR®-rated energy efficient fryers can lower your energy bills and increase your green footprint, underwriting the costs of transitioning to healthier, trans fat-free oils.

THE RIGHT OIL

Once you’ve selected the right fryer to meet your operational needs, the next step in Frymaster’s Fit Frying Program focuses on finding the right oil. Much attention and study has been given to oil in recent years – its composition, how it impacts the frying process, which types work best with certain foods and ways to extend its life cycle.

In the past few years, consumer interest in healthy eating has increased, even as the popularity of fried foods has continued to grow. Innovations in cooking oils have mirrored this trend. Research has shown that unsaturated fats (monounsaturated and polyunsaturated) are beneficial when consumed in moderation, while saturated and trans fats are not. Therefore, to prepare the healthiest fried foods, use oils that are low in saturated fat, trans fat and cholesterol.¹

Table 1: Fryer Features and Benefits

Feature	Open Pot	Tube Style	Flat Bottom
Sediment zone	✓	✓	
All-purpose frying	✓	✓	
Ease of use	✓	✓	✓
Durability	✓	✓	✓
Ease of cleaning	✓		✓
Specific frying			✓

Source: Frymaster LLC

Think of choosing the best oil for your fryer like buying gas for your car. Just as the qualities of the gasoline you choose impact how your car performs, the qualities of the oil will most definitely impact both fryer performance and output (i.e., food quality). Consider all your oil options, features and benefits before making a decision (see Table 2).

■ THE RIGHT FOOD

It is not just the oil that you fry with that can affect the fat content of fried foods. It is also the types of fat and amount of fat contained in the foods you fry. If foods have been par-fried prior to deep-frying which is the case with many pre-prepared frozen foods, the oil that was used in par-frying affects not only the fat content of the food but also the oil in your fryer. For example, if partially hydrogenated oil was used to par-fry chicken or French fries, it will leach into the oil in your fryer. If you are using a trans fat-free oil in your fryer, the level of trans fat will gradually increase and as a result, the food you serve even if it started off trans fat-free, may not meet the necessary standards of less than 0.5mg of trans fat per serving to be trans fat-free when served. The same is true with saturated fats naturally occurring in the foods you are

frying. There is an exchange of these fats during frying as well, increasing their levels in the frying oil over time.

Trans fat-free foods are now available for frying; however, manufacturers have been working on trans fat-free solutions for years, and many more products are on the way. Selecting trans fat-free foods for frying, frying in healthful oil, and following best practice frying methods will ensure you are providing your customers with consistently high quality fried foods that are flavorful and healthful.

■ THE RIGHT PROCESS

It’s not easy being oil. During use, its composition changes as it interacts physically and chemically with food, oxygen and heat. Byproducts are created as a result of this process, some of which evaporate – and some of which stick around to change the oil’s nature. Contaminants, including food particles, and water and starches migrating from food during cooking, can infiltrate oil before, during and after normal cooking.

There are several ways operators can minimize potential oil contamination, and thereby slow changes in oil composition and extend oil life.

- Load and shake fry baskets away from the frypot area,

Table 2: Characteristics of Common Cooking Oils

Oil	Uses	Smoking Point	Flavor Characteristics	Health/Nutrition Characteristics
Canola	Deep-frying, pan frying, sautéing, baking	High – 400°F	Mild flavor	Lowest in saturated fat of all oils – helps maintain healthy cholesterol levels
Corn	Deep-frying, pan frying	High – 450°F	Light taste – can be used in place of olive oil	Helps maintain healthy cholesterol levels
Grape seed	Deep-frying, pan frying, sautéing	High – 400°F	Light taste – can be used in place of olive oil	Helps maintain healthy cholesterol levels
Olive	Sautéing, stir frying	Low to medium unrefined: 320°F; extra virgin: 406°F; virgin 420°F	Bland to very strong, depending on type	High in monounsaturated fat -the green/golden variety has most antioxidants. Helps maintain healthy cholesterol levels.
Peanut (refined)	Stir frying, deep frying, sautéing, grilling	High – about 450°F	Can add a rich, nutty taste, but does not absorb or transfer flavors	Contains resveratrol, an antioxidant that supports heart health.
Safflower (refined)	Deep frying, pan frying, sautéing, baking	High – 450°F	Bland, flavorless	Highest in monounsaturated fats of all oils – helps maintain healthy cholesterol levels
Sesame (refined)	Wok cooking, dressings, flavoring	Medium – 410°F	Pungent – used to flavor many Asian dishes	Contributes vitamin E to the diet, a nutrient that most Americans don’t get enough of
Sunflower (refined)	Deep frying, pan frying, sautéing	High – 450°F	Generally bland	High in polyunsaturated fats – helps maintain healthy cholesterol levels
Vegetable (typically refined soy)	Deep frying, pan frying, sautéing, baking	High – 450°F	Generally mild flavor	Soy oil is high in polyunsaturated fats – helps maintain healthy cholesterol levels; partially hydrogenated vegetable oils (PHVO) contain trans fat, which may increase health risk.

allowing food particles and other contaminants to fall safely away from the oil.

■ Remember **CWASH**: avoid unnecessary exposure of oil to **C**rumbs, **W**ater, **A**ir, **S**alt and **H**eat.

■ Maintain optimal oil temperature in the cooking zone. This extends oil life and avoids situations in which foods are cooked too quickly or at a temperature that is too high. It also protects foods from the over-absorption of oil.

■ For normal contaminants entering the oil during cooking, careful and frequent filtering coupled with good fry station management will remove solid contaminants including food particles and undissolved salts.

■ If oil is contaminated by any unexpected substance or object, it should be disposed of immediately in accordance with safe handling guidelines. The fryer should also be carefully cleaned and sanitized before being used again.

■ Follow the manufacturer's recommendations and instructions for frypot cleaning, and replace oil promptly when needed.

■ The duration for which food is held at a specific temperature during cooking is referred to as the "cooking curve." For best results, oil temperatures should be maintained at 330-350° Fahrenheit at the beginning of the fry cycle – then reduced to near 330°F for a short period, then elevated again to 330-350°F. The preferred cooking curve can vary, depending on the type and volume of food involved, the operator's preference and the desired outcome, including how much oil absorption is preferred.

Determining oil quality by measuring the amount of breakdown compounds in the oil, also known as total polar materials (TPM), is growing in popularity. By using an electronic meter such as the ebro oil quality meter, you can safely and accurately measure oil quality in seconds. When oil reaches 24 percent TPM, it is time to replace the oil. In fact, some European Union countries have adopted standards for measuring oil properties and requirements for oil change and management based on those measurements.

■ THE RIGHT MAINTENANCE

When you follow Frymaster's guidelines for fry station management, oil filtering and temperature management, you can significantly extend the life of your oil. Frequent oil filtering removes sediment from food, slows creation of contaminants that affect oil quality and oil life. By extending oil life, you can actually underwrite the cost of transitioning to healthier, but more expensive, trans fat-free oils.

Frymaster recommends that most operators filter fryer oil at least once daily. In high-volume operations and when frying heavily battered items, we advise filtering periodically throughout the day. Frymaster recommends

particle filtration to the 5 micron level to remove the widest variety of contaminants that contribute to the carbonization of foods and build up of residue on the frypot.

Periodic oil polishing is also recommended, a process by which oil is filtered continuously through a number of cycles usually between 5-10 minutes to maximize oil clarity and oil life. With built-in filtration systems, filtration can be conducted conveniently at fryer start-up and whenever needed during the day when patron traffic allows. By making filtration fast, easy, convenient and safe for employees, the likelihood that filtering actually happens increases.

■ FRYMASTER, YOUR FIT FRYING PARTNER

As an industry leader, Frymaster wants to be the foodservice industry's first-stop resource for fit frying information and tools, to help educate foodservice operators in all segments about the benefits of proper frying techniques and fry station management. Frymaster partners with prominent research laboratories and experts to further the science of frying, and expands this learning by working one-on-one with key customers, participating in industry and scientific groups, and by conducting our industry-leading Frying Masters training programs. Frymaster has commissioned and participated in a variety of independent tests conducted by third-party labs on optimizing oil life, oil characteristics, oil management and frying performance.

Knowing how to properly select, operate and maintain a fryer and its oil can help ensure your fried foods are healthier and consistently delicious. Implementing our Fit Frying Program also helps minimize your costs by extending the life of your oil and equipment.

To learn more about Frymaster's Fit Frying Program and how we can help you enhance your frying business, visit www.frymaster.com or call (800) 221-4583. ■

¹ FDA Consumer Magazine, United States Food and Drug Administration, Revised May 2004. Viewable online at http://www.fda.gov/fdac/features/2004/304_food.html.