



## Food Safety Information

# Deep Fat Frying and Food Safety

**C**hicken, turkey, donuts, potatoes, and onion rings are examples of foods that can be cooked in a deep fryer. While these items are often purchased at a restaurant, deep fat frying is also a popular way to cook in home kitchens. However, deep frying in hot oil can be extremely dangerous. Hot oil can burn people and start fires. If food is not cooked to a safe temperature, it can cause a foodborne illness. The following information provides important guidelines to prevent deep fat frying injuries at home, and to ensure that food is cooked to a safe temperature.

### What is deep fat frying?

Deep fat frying is a cooking method that can be used to cook foods such as fried chicken, French fries, and potato chips. The process involves submerging a food in extremely hot oil until it reaches a safe minimum internal temperature. When the food is deep-fried properly, it will be hot and crispy on the outside and cooked safely in the center. Deep frying is very fast and, when performed properly, destroys bacteria.

### Dangers of Deep Frying

Deep frying oil can reach temperatures of over 400 °F. When cooking at this temperature, extreme safety measures should be taken to prevent burning oneself or starting a fire. Like other oils, cooking oil is a highly flammable liquid. To prevent flare-ups and house fires, avoid letting oil contact direct flames. Because of this hazard, it is highly recommended to have a kitchen fire extinguisher available when deep-frying.

Water is a very dangerous liquid when deep frying. When water encounters very hot oil (about 350 °F) water vaporizes instantaneously turning into super heated steam. It expands quickly, which can cause oil to splatter and risk bodily injury. Do not let water get into the hot fat or use water to cool, or clean the appliance while food is deep-frying.

**In the event of a grease fire, never use water to put out the fire.** Using water can cause flaming oil to splatter and spread. A kitchen fire extinguisher or covering the fryer with a metal lid is the best way to put out a grease fire. Call 911 immediately if a grease fire occurs.

### Preparing the Fryer

- If you have a deep fryer, read the directions in the owner’s manual before using the appliance.
- If you do not own a fryer, use a deep, heavy skillet to fry. However avoid using cast iron as it breaks down oil faster than other metals.
- Purchase and prepare all of the ingredients you plan to deep fry.
- Have a kitchen fire extinguisher nearby.
- Before you fill the deep fat fryer with oil, make sure the fryer is turned off, away from water sources, and wiped dry.

### What kind of oil is recommended?

All oils have a “smoke point” at a specific temperature. At the “smoke point,” the oil begins to break down and can have a foul odor or taste. The following oils have a high “smoke point” and are safe to use for deep frying: peanut, canola, corn, grape seed, safflower, sunflower, and vegetable. Each kind of oil has a unique taste and nutrient makeup but all are safe to use for deep-frying.

Type of Oil	Approximate Smoke Point
Peanut, Safflower, Soybean	450 °F
Grapeseed	445 °F
Canola	435 °F
“Enova” Brand	420 °F
Corn, Olive, Sesame Seed, Sunflower	410 °F

## Preparing the Food

Clean all surfaces and wash your hands before handling any food to avoid cross-contamination. Take out the food you plan to fry and pat dry in order to prevent oil splatter when food is submerged. If you are deep frying frozen food, make sure any freezer burn or excess ice is removed. Prepare a batter if desired.

Fill the oil container to the recommended level and adjust your fryer to the temperature best for the food you are frying. If you are using a skillet, fill oil no more than 2 inches from the top of the skillet to allow space for the oil to rise when the food is added. If available, use a candy or deep frying thermometer to ensure the oil reaches and stays at the correct temperature. (See table below for frying temperatures.)

When the oil has reached the correct temperature, it is time to begin deep-frying. Before placing battered food in the oil, remove any excess batter to prevent debris in the oil and maintain an even coating on the food.

### Approximate Cooking Times

Food	Cooking Time	Oil Temperature
Chicken Pieces	13 – 20 minutes	375 °F
Chicken Fingers	6 - 8 minutes	350 °F
Turkey	3 to 5 min. per pound	350 °F
Fish Fillets	3 – 5 minutes	320 °F
Shrimp	4 – 6 minutes	320 °F

## During Frying

If using a deep fryer, do not overcrowd the frying basket, which can cause undercooking, uneven cooking, and overflowing of the oil. To prevent splattering oil or burning yourself, do not touch the frying basket or add food while the basket is submerged in oil. It is important never to leave your fryer unattended. Because frying is a very fast cooking process, food can blacken, burn, and become a potential fire hazard if cooked only a few minutes too long.

If you are frying in a skillet, use a slotted spoon or tongs to take the food out of the oil when you think it is done. Never use plastic when deep-frying as some plastic can easily melt in the hot oil. If using a deep fryer, remove the basket. Do not test the internal temperature of the food while it is submerged in the hot oil; this will lead to an inaccurate temperature reading.

Place the food on a plate covered with paper toweling. Use a clean food thermometer to check the internal temperature of meat, poultry, or seafood (see table below).

If the internal temperature is below the minimum safe internal temperature, submerge the food again. Although the food may look dry after a few minutes it can still be very hot. Take extreme care when handling or eating deep fried foods.

Food	Internal Temperature
Poultry	165 °F
Fish and shellfish	145 °F

## Deep Fat Frying a Turkey

A whole turkey can be successfully cooked by the deep fat frying method provided the turkey is **not** stuffed and has been completely thawed. The turkey should be 12 pounds or less in size.

There are safety concerns when working with such a large amount of oil. Select a cooking vessel large enough to completely submerge the turkey in oil without it spilling over. The oil should cover the turkey by 1 to 2 inches. To determine the amount of oil needed, do a preliminary test using water. Place the turkey in the cooking utensil and add water to cover. Then remove the turkey and measure the amount of water. This is the amount of oil needed.

Select a safe location outdoors for deep fat frying a turkey. Heat the cooking oil to 350 °F. When the oil has reached the correct temperature, it is time to begin deep-frying. Slowly and carefully lower the turkey into the hot oil. Monitor the temperature of the oil with a thermometer constantly during cooking. Never leave the hot oil unattended.

Allow approximately 3 to 5 minutes per pound for cooking time. Remove turkey from the oil and drain oil from the cavity. Check the temperature of turkey with a food thermometer. The turkey is safely cooked when the food thermometer reaches a minimum internal temperature of 165 °F in the innermost part of the thigh and wing and the thickest part of the breast.

If the turkey is not done, immediately return the turkey to the hot oil for additional cooking. When the turkey is done, remove it from the oil and place it on a sturdy tray lined with paper towels. The skin can be golden to dark brown to almost black. Let it rest about 20 minutes before carving.

## Deep Fat Frying and Food Safety

### After Deep Frying

When you have finished cooking all of your food, turn off your fryer and unplug it to allow the oil to cool. (If using a skillet, take it off the heat.) When you are ready to clean your fryer, make sure the fryer is completely cooled (wait approximately 2 hours).

If you are planning to reuse the oil, strain it through a cheese cloth or sieve. Store the used oil in a sealed and light-proof container for up to 3 months. For best quality, refrigerate used frying oil that you want to use again.

If the oil is clouded or if the oil starts to foam or has a foul odor, taste, or smell, discard it. The safest way to dispose of oil is by pouring it into a sealable metal container such as a coffee can, or gallon milk jug, and then throw the oil-filled container in the trash. Used cooking oil can also be recycled in some areas. If there is a recycle drop-off point in your area, check it to see if they will accept your oil so it could be used to make biodiesel fuel or soap.

Do not pour oil down the sink. Oil will cool with water in the drain and congeal causing backups in your sink, septic system, or public sewer system. Oil can also be damaging to the environment. Oil can spread very thinly across water over a very large area changing the chemistry and health of the ecosystem. Thus, do not dispose the oil near lakes, streams, or watersheds.

### Handling Leftover Fried Foods

Refrigerate leftovers within 2 hours of frying (1 hour if the temperature is above 90 °F). Cooked food left over 2 hours at room temperature can cause rapid bacteria growth and make the food unsafe to eat.

## Food Safety Questions?

### Call the USDA Meat & Poultry Hotline

If you have a question about meat, poultry, or egg products, call the USDA Meat and Poultry Hotline toll free at **1-888-MPHotline (1-888-674-6854)**. The hotline is open year-round



Monday through Friday from 10 a.m. to 4 p.m. ET (English or Spanish). Recorded food safety messages are available 24 hours a day. Check out the FSIS Web site at

[www.fsis.usda.gov](http://www.fsis.usda.gov).

Send E-mail questions to [MPHotline.fsis@usda.gov](mailto:MPHotline.fsis@usda.gov).

### Ask Karen!

FSIS' automated response system can provide food safety information 24/7 and a live chat during Hotline hours.



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