

http://www.culinary-yours.com/frying_oil.html

Deep Frying

Deep-fried food is often synonymous with "fast" food, in North American culture. However, deep-frying can be traced to exotic roots in Asia and Europe. Fat was rendered from meat, then used to cook foods more quickly than stewing and roasting. Now, we know about the cholesterol in animal fats and are using more healthful vegetable oils, like Canola, to fry our foods.

An added bonus of Canola and other vegetable oils is that they have higher smoke points than animal fats. The **smoke point** of an oil is the temperature at which the oil begins to decompose and visible fumes (smoke) are given off. The oil begins to breakdown creating **acrolein** , an obnoxious-smelling compound.

The Smoke Point

Knowing the smoke point can also save you money, because each time you deep-fry, you lower its smoke point irreversibly. If your oil's smoke point is just above 190 degrees C (375 degrees F), which is the normal deep-frying temperature, chances are its smoke point will drop below 190 degrees C (375 degrees F) after its first use, rendering it useless. If you want to save money by reusing an oil as many times as possible, select one with a high smoke point.

Smoke Points

Safflower	265 degrees C
Sunflower	246 degrees C
Soybean	241 degrees C
Canola	238 degrees C
Corn	236 degrees C
Peanut	231 degrees C
Sesame	215 degrees C
Olive	190 degrees C
Lards	183 to 205 degrees C

A number of factors will decrease the smoke point of any fat:

- combination of vegetable oils in products
- presence of foreign properties (batter)
- temperature to which oil is heated
- presence of salt
- number of times oil is used
- length of time oil is heated
- storage of oil (exposure to oxygen, light, temperature)

Knowing the smoke point will also warn you about, because of its proximity to, the flash point and fire point. An oil reaches its **flash point** (about 320 degrees C (600 degrees F) for most oils) when tiny wisps of fire begin to leap from its surface. If the oil is heated to its **fire point** (slightly under 400 degrees C (700 degrees F) for most oils), its surface will be ablaze.

Never use water to put out an oil fire: the water will splatter the burning oil and spread it more quickly. Instead, smother the flames with a tight-fitting lid or sheet of aluminum foil. If the fire has spread outside the pan, suffocate it with baking soda or a fire extinguisher formulated for oil fires.

Deep-Frying With Ease

Maintain a frying temperature of 190 degrees C (375 degrees F). The batter-coated or breaded surface will quickly form a protective shield, preventing the oil from penetrating the cooled food and making it greasy. The food will cook by conduction or indirect heat.

If the oil is not hot enough, oil will reach the food before the coating cooks enough to form the protective layer. The result - greasy food.

If the oil is too hot, the coating will burn from the direct heat of the oil before the food has had time to cook.

Dip the food in lightly beaten egg and roll in seasoned bread crumbs. Allow the uncooked breaded food to rest on a rack at room temperature for fifteen to twenty minutes before deep frying so the food partially dries and the crumbs adhere to the food.

Have the eggs at room temperature and avoid over beating: air bubbles are poor binders.

Small bread crumbs adhere better than large crumbs.

Avoid adding salt to food before deep-frying. The salt draws moisture to the food's surface, which will splatter when the food is added to the hot oil. Salt also lowers the smoke point and breaks down the oil more quickly. If required, salt can be added just before eating.

Fry vegetable foods, like potato chips, while they are still frozen to limit the fat absorption.

Avoid crowding the deep-fryer with food as it will lower the oil's temperature.

For each volume of food, use at least six volumes of oil.

Preheat the oil to about 7 to 8 degrees C (15 degrees F) higher than its optimal deep-frying temperature. Preheating it higher than this may damage the oil's molecular structure.

Signs of Deteriorated Oil

Oil darkens with use because the oil and food molecules burn when subjected to high/prolonged heat.

The more you use an oil, the more slowly it will pour. Its viscosity changes because of changes to the oil's molecular structure.

Loose absorbent particles accumulate as sediment at the bottom of the storage container or are suspended in the oil.

When smoke appears on the oils' surface before the temperature reaches 190 degrees C (375 degrees F), your oil will no longer deep-fry effectively.

If the oil has a rancid or "off" smell or if it smells like the foods you've cooked in it, it should be discarded.

Prolonging Oil's Useful Life

The longer an oil is heated, the more quickly it will decompose. Avoid preheating the oil any longer than necessary. If you're cooking more than one batch of food, quickly add each new batch, unless time is needed to adjust the cooking temperature. Turn off the heat as soon as you've removed the last food batch from the oil. Cool.

Use a quality deep-fat frying thermometer, even if you're using an electric deep fryer.

Shake off loosely attached break crumbs from breaded food before adding the food to the oil. Loose crumbs and other particles scorch quickly and pollute your oil. Use a small strainer or slotted spoon to remove as many crumbs as possible.

When the oil has cooled enough that it is safe to handle, strain it through paper towels, coffee filters or cheesecloth into its original empty container or a clear glass jar. Do not mix it with unused oil.

Store the oil, tightly sealed, in a cool, dark place or in the refrigerator. The oil may cloud in the refrigerator, but it should become clear again at room temperature with no ill effects.