



Guidance on the Use and Handling of Frying Fats and Oils

The appeal of fried foods is universal and enjoyed by all cultures around the world

Fried food has grown in popularity despite the low/no-fat trend. The deep-frying process is commonly used by the fast food industry. With the growth of fried food, there also has been continual improvement in quality of food prepared by frying. Higher quality food ingredients, better frying oil, improved frying equipment and frying practices have contributed to the improvement of fried food.

The fat or oil used for frying often determines the acceptability of food prepared in it. Although frying oil serves primarily as a heat exchange medium, oil often makes up a significant portion of the final product. Oil varies widely in eating quality, functionality and rate of deterioration, depending on source, processing or formulation.

Reaction flavours generated from the food ingredients account for much of the flavour of fried foods. Frying fat influences the quality of the food, but the direct influence on flavour is more subtle. The flavour contribution from the oil becomes more pronounced, either positively or negatively, as the oil is used and “conditioned” over time.

Frying oil changes with use, going from fresh, through its optimum state to a degraded condition. Both physical and chemical changes occur in oil as a result of frying. These are due to oxidation as well as interaction between oil, water and food components. These reactions produce a variety of physical and chemical changes in the oil, some of which are visible.

These include darkening of the colour of the oil, thickening of the oil, foaming and smoking of the oil. The odour and flavour of frying oil as well as food fried in the oil also change.

However, other non-visible changes also occur and visible changes as sole quality parameters are not recommended.

Moderate consumption of frying fats under normal culinary practice is safe, however, it is evident that some compounds generated during frying can impair the nutritional value of used frying fats and are undesirable from a safety point.

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Frying fat can be used for a longer time without losing its quality if the following advice is followed:

- Use fat specially intended for frying.
- All fat in the fryer should be changed before it smokes or foams. Use tests such as Food Oil Sensor or Oxifrit Test to indicate when it is time to change.
- Frying temperature should be 160-180°C (320-356°F). At lower temperatures, the products absorb more fat. At higher temperatures, the fat deteriorates more quickly.
- Caution: do not overheat. If the fat temperature rises above 300°C (572°F), the fat may burn.
- The fryer should have no iron, copper or brass parts that come in contact with the heated fat.
- Lower the temperature when not frying and cover the fat to protect it from light.
- Keep a constant level of fat in the fryer. Fry a small amount of food at a time to keep the temperature as even as possible.
- Avoid salting or seasoning fried food over the fryer. Salt and seasoning can accelerate breakdown of the fat.
- Use a separate fryer if possible for potatoes. The fat deteriorates more rapidly when meat or fish are fried than when only potatoes are fried.
- Solid material and detergent residues can accelerate breakdown of the fat. Strain the fat to remove solid material. Clean the fryer once daily and rinse carefully after cleaning to remove all traces of detergent. Store the strained fat at room temperature or at lower temperatures in a covered stainless steel vessel. If iron pots are used, they should be rinsed only with hot water. Detergents remove the protective film of polymerised fat that builds up during use.

Note

Acrylamide is a common reaction product generated in a wide range of cooking processes, such as frying. Acrylamide formation is increased at higher temperatures and food business operators should be aware of the factors influencing its formation. Information on formation and potential intervention steps can be obtained from the CIAA “Toolbox”, which reflects the results of several years of industry cooperation.

To access the Toolbox, visit:

http://www.ciaa.eu/asp/documents/brochures_form.asp?doc_id=65)

For more information on Acrylamide visit the FSAI website at:

<http://www.fsai.ie/assets/0/86/204/fe6c69f1-aa8b-4d6a-b5c1-98fbfe11662b.pdf>