

GUIDELINES ON THE USE Of Olive Pomace Oil in cooking

All you need to know



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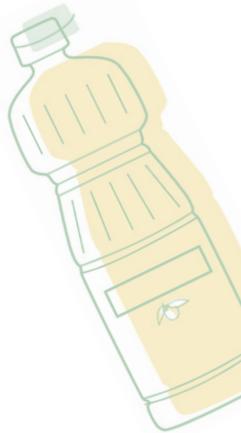
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1 Introduction

This short guide is designed to inform readers of the uses and basic characteristics of Olive Pomace Oil.

Some of you, professionals, cookery students and general users, are almost certain to have heard of Olive Pomace Oil.

However, you are probably not fully sure about its uses or for what culinary creations it is suitable.

We encourage you to read this Guide and take full advantage of this unique product. Healthy, affordable and more durable than seed oils, it can be a great ally in the kitchen, above all when you are frying.



Healthy, affordable and durable. Find out about the advantages of Olive Pomace Oil, a great ally in the kitchen.





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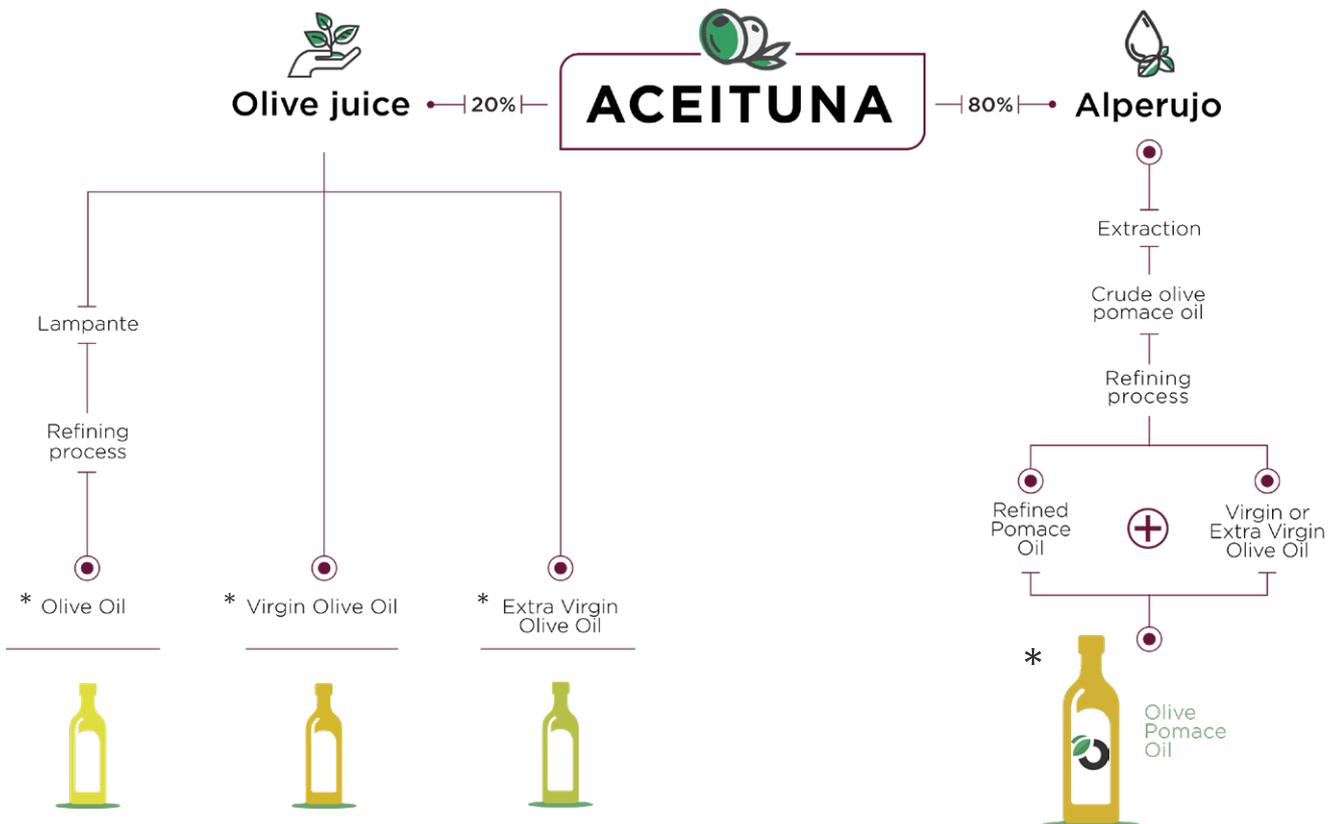
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Olive Pomace Oil

Olive Pomace Oil is, like all fats and oils, a lipid. It is an edible vegetable oil, liquid at a temperature of 20°C. Like all

the others, it is also composed of 96-97% triglycerides comprising fatty acids, with the rest being other minor lipids.

Where does Olive Pomace Oil come from?



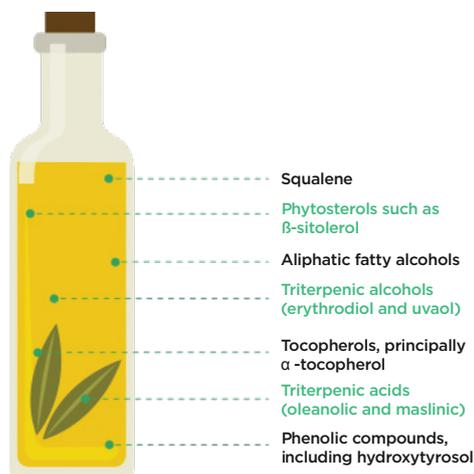
* Four types of oil from the olive tree that may be found in the supermarket range.

Regulations state that the ingredients can only be refined Olive Pomace Oil and virgin or extra virgin olive oil.

As we see, Olive Pomace Oil comes from the olive tree and we can therefore say that, after olive oil in any of its varieties, it is the second healthiest oil in the world.

We can trust in Olive Pomace Oil precisely for this reason: because it comes from the olive tree, which has been cultivated for thousands of years.

HEALTHY BIOACTIVE COMPOUNDS:



How is it used in the kitchen?

The tastes, aromas and even the colour shades of virgin and extra virgin olive oil are unique. In dishes where the taste of the oil form part of their quality, these are the best to use.

However, for other uses: **sauces, light fries, stews, confectionery and fried food**, Olive Pomace Oil possesses exceptional properties.



A growing number of homes use Olive Pomace Oil. It may also be found in the establishments of the **HORECA** channel and of course in the food industry: preserves or **snacks**, among others.

Summarising ideas:

Olive Pomace Oil comes from the olive tree and it is used in the kitchen and the food industry just like any other vegetable oil.

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The benefits of consuming Olive Pomace Oil

Qualities of Olive Pomace Oil

Nutritionally, Olive Pomace Oil is a healthy food product, a lipid.

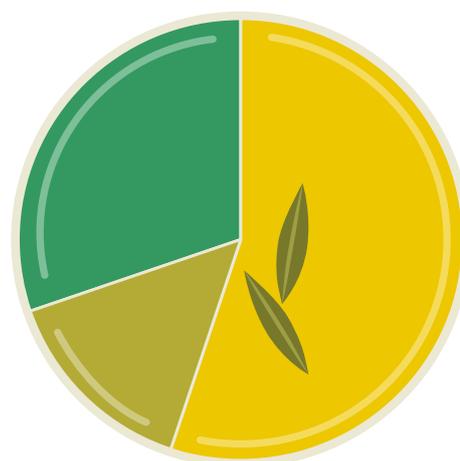
Nutrition experts recommend daily consumption, as well as vitamins and minerals, energy nutrients: lipids, proteins and carbohydrates, which are all essential for the body. **But in what proportions?**

The graphic below shows generic distribution of nutrients. The specific percentage for each individual depends on gender, age and lifestyle.

- Carbohydrates
- Proteins
- Fats

It is important to highlight that of the fats that are consumed daily, more than half should be monounsaturated, like Olive Pomace Oil.

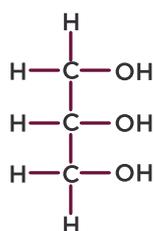
BALANCED DIET:



Oils are triglycerides composed of fatty acids. In triglycerides, three fatty acids are bonded to the glycerol molecule.

Triglycerides can have mainly saturated or unsaturated fatty acids.

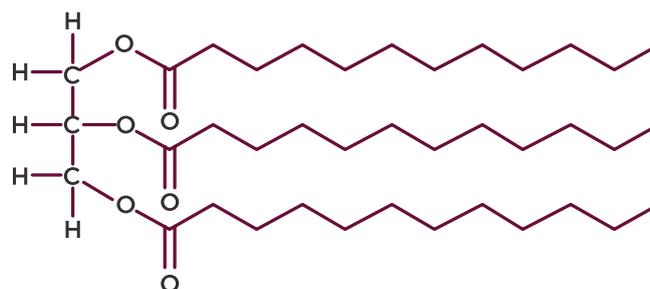
GLYCEROL



FREE FATTY ACID



TRIGLYCERIDE



Triglycerides:

Saturated Fatty Acids:

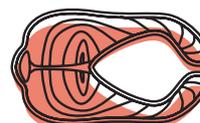


Unsaturated Fatty Acids:

Monounsaturates



Polyunsaturates



Saturates. Found in animal fat: milk, cream, butter, lard, tallow, and in some vegetable oils: palm, palm kernel or coconut. Saturated fats should be consumed in moderation because an excess will increase the LDL cholesterol (bad) in the blood.

Unsaturates. There are two types:

Monounsaturates: present in olive oil

(oleic acid) and therefore in Olive Pomace Oil. They increase HDL cholesterol (good) and reduce LDL cholesterol (bad). They are good at preventing cardiovascular diseases. Remember that with regard to the consumption of fats recommended each day, more than half should be monounsaturates.

Polyunsaturates: found in seed oils (sunflower, soya and maize mainly) and in fish.

The therapeutic quality of Olive Pomace Oil is determined by its composition of monounsaturated fatty acids, which are significantly beneficial in the prevention of cardiovascular diseases.



Olive Pomace Oil possesses as much as 85% oleic acid, and 2% of bioactive substances that perform bodily functions that can promote good health.

Summarising ideas:

Olive Pomace Oil is a lipid, liquid at room temperature. It is composed principally of monounsaturated fatty acids, mostly oleic acid. The consumption of Olive Pomace Oil is recommended in a balanced, healthy diet.

Current research*, which is being conducted at the Spanish National Research Council (CSIC), demonstrates the anti-oxidant, anti-sclerotic and vasodilatory properties of Olive Pomace Oil.

Of the CSIC's four pieces of research, three are in progress and one has concluded:

- 
Assessment of the effect on health of Olive Pomace Oil in healthy patients and in the risk population. Research centre: Institute of Food Science, Technology and Nutrition, ICTAN. (In progress)
- 
Protection against Alzheimer's disease through the reduction of microglia activation by Olive Pomace Oil. Research centre: Institute of Fat, IG. (In progress)
- 
Complete characterisation and assessment of bioactive components of Olive Pomace Oil in fried food; studies on the behaviour of Olive Pomace Oil in the frying of different foods and comparison with special seed oils for frying. Research centre: Institute of Fat, IG. (In progress)
- 
Behaviour of Olive Pomace Oil in frying and comparison with conventional sunflower and high-oleic sunflower oils. Research centre: Institute of Food Science, Technology and Nutrition, ICTAN. (Investigation concluded) Further information on page 16. The summary of results is available at: www.oriva.es

* To learn more about these studies, visit the website of the Interprofessional Association of Olive Pomace Oil, ORIVA, R+D+I section.



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The benefits of Olive Pomace Oil as a Frying Oil

Qualities of Olive Pomace Oil in Frying

We have already seen that **Olive Pomace Oil is used just like any other vegetable oil**; we will now examine its specific use as an oil for frying, one of the most popular techniques in cooking.

Let's first explain what this technique consists of.

Frying is the cooking of a food that is **submerged in an oil at high temperature**.

This definition, which is simple and yet complex at the same time, leads us to seek the keys to finding the oil with the best culinary quality, the one that most

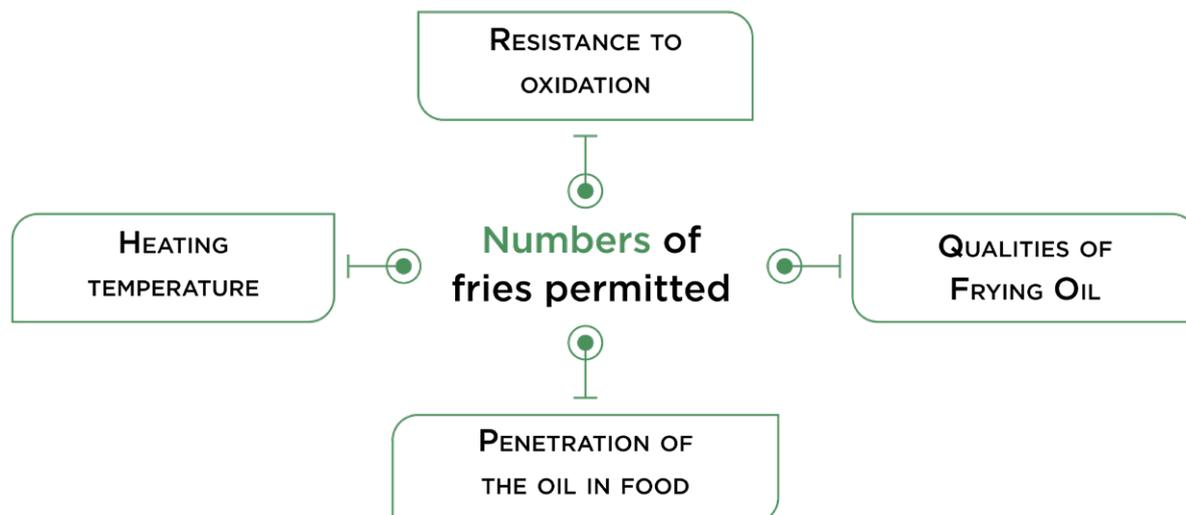
satisfies the needs of cooks and consumers. Therefore, we should consider the core qualities in frying oils.

As stated by Dr **Márquez-Ruiz et al. (2018)***, frying is a **highly complex process that involves numerous reactions**, due to the action of the oxygen in the air, the high temperature and the water that comes from the food.

This leads to organoleptic changes, an increase in viscosity, foaming, darkening and reduction of the smoke point.

The altered compounds formed are known as **polar compounds**.

* Gloria Márquez-Ruiz is a scientific researcher at the CSIC. She is the principal researcher of the study "Behaviour of Olive Pomace Oil in frying and comparison with conventional and high-oleic sunflower oils".



Heating temperature

The oil in frying acts as a **heat transfer medium**. One of the requisites is for it to be stable in the highly extreme conditions of frying by immersion; that is, high temperatures and humidity.

The **optimal temperature** for frying is 170-190°C, but it is best not to exceed 180°C in the kitchen.

LIMITED TEMPERATURE

If the frying temperature does not reach the optimal point, the foods **take a long time to fry and they absorb a large**

amount of frying oil. This makes them harder to digest, less appetising and more caloric.

EXCESS TEMPERATURE

What is called the **smoke point** should never be exceeded. At this temperature, **the oil is spoilt**, it gives out smoke, forms bubbles and becomes viscous.

The **smoke point** of Olive Pomace Oil can be **between 230-240°C**, one of the highest.

Resistance to thermal oxidation

Frying oils change because their fatty acids oxidise in the presence of oxygen and heat (thermal oxidation), they deteriorate by modifying their composition and the polar compounds increase

and become harmful. It is also necessary to avoid the remains of organic matter in decomposition or carbonised compounds, which are substances that assist oxidation.

To gauge the degradation of an oil and discover whether it can still be used, the only legal, obligatory parameter in Spain is to measure its polar compounds, which must not exceed 25%, according to the Quality Standard for Heated Oils and Fats.

Of all the measurement methods, the most widely used in catering are reactive strips.

All catering establishments must administer food safety through the Guide of Good Practices or HACCP¹, among other regulations. All of these specify the obligatory nature of measuring polar compounds and keeping a documentary record. It should not be forgotten that observation is not enough to find out whether an oil is degraded.

Observation gives us clues but if we want to use the oil with full health guarantees, we must resort to using something as simple as use a reactive strip (or any other measurement method).

The large amount of oleic acid (as much as 85%) in Olive Pomace Oil explains its durability in frying. This is why seeds are modified to obtain oils with more oleic acid.



Penetration of oil in food

Cooking with Olive Pomace Oil is very affordable; it goes far when a good frying technique is used.

Foods absorb fats during frying but a **good frying technique**, of the right duration and temperature, helps to create a fine, consistent layer around the fried product that **prevents an excess of oil**. It is best to cut the food into medium-sized or large pieces for **crunchy fries with less fat**.

Oils also deteriorate according to the number of times they are heated. The amount of fat needed for frying obliges us to use them more than once.

Therefore, we seek fat that enables the **highest number of heatings** without causing damaging degradations.

¹ Hazard Analysis and Critical Control Points”

Number of fries allowed

The specific composition of Olive Pomace Oil, which is very rich in oleic acid and has exclusive bioactive compounds, explains its distinctive properties as it has a protective effect on the oil, making it more durable and stable.

This is one of the main conclusions of the comparative research with sunflower oils (conventional and high oleic) conducted by the Institute of Food Science, Technology and Nutrition (ICTAN) and the Spanish National Research Council (CSIC), with Dr Gloria Márquez as principal researcher. (Further information on www.oriva.es)

The study found that in discontinuous or domestic frying, conventional sunflower oils reach their maximum level of use, set by regulations at 25% of polar compounds, on the 9th-10th fry and high-oleic sunflower oils on the 17th-18th fry. In contrast, Olive Pomace Oils reach the 21st fry. That is, they may be used twice as many times as the seed oils that are

most common among consumers in frying. **This stability is also observed over 40 fries in trials conducted in continuous or industrial frying.**

Some vegetable oils with additives in the form of defoamers, also have a long life. However, it is necessary to take into account that these are additional substances and do not form part of the oils.

Summarising ideas:

Olive Pomace Oil is convenient, healthy, affordable and durable in frying. It is stable at the optimal cooking temperature; its monounsaturated fatty acids, oleic acid, do not oxidise thermally as much as other vegetable oils; in frying it creates a layer on foods that leads to only a small amount of fat being absorbed. Therefore, it goes further and withstands a high number of fries.

Organoleptic and nutritional changes in food and oil after undergoing frying

This point resolves many doubts about **Olive Pomace Oil**, what it is and where it comes from.

We know that it is a perfect choice as an oil for frying: **healthy, affordable and durable.**

Let's see now why we should choose this cooking technique:

We enjoy fried food. This is obvious. The key is the **crunchy, tasty crust** that is formed around the food being fried. It makes our taste buds secrete saliva and whet our appetite.

On a hedonic scale², frying always gets excellent results. We fry to transform foods and make them digestible and tasty. Organoleptic changes contribute palatability³ to the taste of the foods that are enriched. The colour and the texture of fried foods also makes them more appetising.

It is important to note **Maillard's reaction**⁴ in the organoleptic changes of frying.

Although the reaction is not exclusive to this technique, it is responsible here for the golden-brown colouring and the appearance of a complex nuance of tastes and aromas resulting from the multiple compounds that are developed in this "caramelisation" of food.

Nutritionally, food that is fried gains in calories due to the oil it contributes to the food. However, as we have seen, these calories are necessary for the daily energy that our bodies require. What we

should do is fry well in order to minimise the fat content; and to do so we must again highlight the importance of the temperature of the oil.

On placing the food into **Olive Pomace Oil at 180°C** a crust is formed on the outside of the food and the increase in fat is minimal, the food is enclosed and the water it contains turns to steam, helping to cook it quicker. In this way, less caloric, healthy fries are obtained.

If the temperature is lower, foods rich in water content lose this characteristic through evaporation and gain oil. In addition, humidity decomposes the triglycerides, increases the acidity of the oil and unpleasant smells and smoke appear.

In foods rich in fats, the latter are exchanged with the oil. This also shortens the life of frying oils that are mixed with those of the food. In these cases, it is best to fry the food with a covering.



² In the hedonic scale, consumers are asked to respond using a format of the following type: I don't like it all, I don't like it, I like it, I like it a lot or a little, in order to rate their degree of satisfaction.

³ Palatability is according to the Royal Spanish Academy (RAE), the quality of being agreeable to the palate.

⁴ Maillard's reaction designates a complex collection of chemical reactions that entail the colouring of foods or technically, non-enzymatic protein glycosylation or glycation.



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Types of Frying and suitable foods.

In the kitchen of any home or restaurant, we find a host of recipes where frying plays the leading role.

We will see in this section some of the characteristic features of this culinary technique.

The amount of oil necessary

We have already said that **frying is submerging** but there are times when the food's delicate nature or size means it is not immersed. Instead, a frying pan is used with an amount of oil that does not cover the food.

We should rule out this type of frying whenever possible. This is because, while the upper part of the food is not covered, the oil jumps onto the product without enclosing it and therefore it enters and **caloric intake is increased**.

We can also fry in large pans or in what

are called **deep fryers** or “**parisinas**”. These are pans of a great depth and are commonly used for cooking paellas where frying takes place with the food submerged in an abundance of oil.

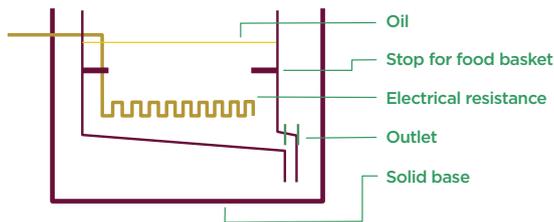
In both cases, the biggest difficulty is that the frying temperature is not constant, so the oil changes quickly.

Therefore, it is best to use a fryer, either electric or gas, in domestic frying and catering. This will remain at a constant temperature and hold enough oil to keep the food submerged.

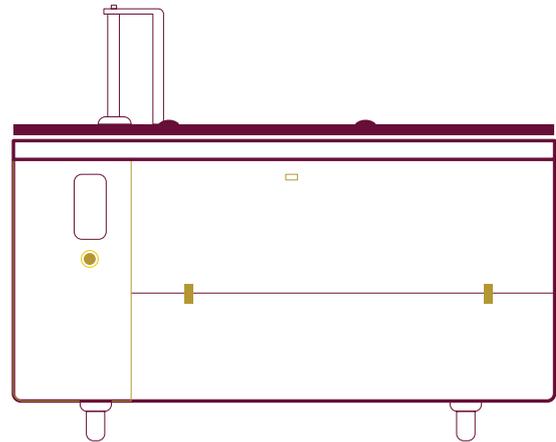
This fryer is known as a **discontinuous fryer**, the oil is heated and cooled a number of times, compared with a continuous belt fryer, customary in the food

industry, where **Olive Pomace Oil** is used very often.

CUVETTE OF AN ELECTRIC FRYER:



A TYPICAL CONTINUOUS FRYER:



Types of frying according to how the food is coated

Frying coagulates the external surface of foods, providing them with a golden and crunchy external film. As we have seen, the food may be fried uncovered but it may also be protected by other foods.



Depending on how we coat foods before frying, we can make a distinction:

Floured: consists of covering the whole food surface with flour.

Contrary to popular belief, the food should not be over-dried so that the flour sticks and is not transferred to the oil while it is fried and remains at the bottom of the pan after frying as a residue.

This leads to external toasting that gives it a crunchy consistency and is juicy inside.



For delicate foods like small fish so that they do not break during frying. Known as **Andalusian frying**, it is frequently used with small pieces of fish and cephalopods.

Battered: consists of coating the food first in flour and then in beaten egg prior to frying.

The covering is soft and golden and the food juicy. It is used with slices of fish like hake or cod, or with small fishes whose central spine is removed and are opened and filled, such as the anchovy⁵.



In this latter case, as the batter coagulates quickly, the filling remains inside.

Breaded: this involves coating the food in beaten egg and then breadcrumbs.

Sometimes flour is added so that the egg does not slip off. The external layer is thicker and crunchier than in battering and plays a more important role.

On occasions, the breadcrumbs are enhanced with an aromatic herb.

Croquettes, san jacobos or fish fingers are typical foods that are breaded.

Pastries to fry: these have different degrees of thickness. They coat and fry either raw or cooked food.

These are of different types, depending on the foods to be coated. All share the characteristic that they must be made **30 minutes ahead of time** to allow them to stand and the flours used should be diluted to avoid lumps.

Meats, fish, vegetables and even cheese or fruit, always cut into strips, are

covered in these pastries.

At the final moment, they are fried in abundant oil at 180°C for five minutes or until they are golden and crunchy. Most commonly used examples are Japanese tempura and classic Orly pastry.

Doughs for frying: they coat and protect foods and fillings. The most popular is dough for small pasties, although there is also filo pastry, brick pastry or the newer wonton pastry and gyoza.

⁵ The anchovy, whose scientific name is *Engraulis Encrasicolus*, has several names in different Spanish regions.



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The Frying process

“Frying is an art and like all arts it is necessary to create it with love”

A.Escoffier (1903)

The Frying Process Step by Step

1 Choose Olive Pomace Oil.

2 The fryer.

☞ Fill and pre-heat.

3 Prepare the food chosen.

☞ Wash, peel, bone and stone...

☞ Cut into fine strips.

☞ Prepare the pastries and doughs after they have stood.

4 Frying.

☞ This must be done in batches of some 200g of food for each litre of oil.

☞ Do not allow the oil to cool between frying batches, keep it at 180°C*.

☞ Frying time must be limited.

5 After frying.

☞ Add salt to taste; if this is done earlier, it is transferred to the oil and it degrades quicker.

☞ Remove the excess oil on the food with absorbent paper.

☞ Serve immediately.

☞ If the fryer is not going to be used again, filter the oil, store it out of daylight and cover it to avoid oxidation.



* Suitable temperature if there are short periods between frying batches.



7

Tips that will help you cook.

- 🌿 Before using the oil, keep vessels in cool places and out of the light. Once they are open, cover them and consume the oil as quickly as possible.
- 🌿 Do not mix oils of different types; their taste and properties will change.
- 🌿 Oil can be mixed if it is the same type; what is important is that the fryer always has the same amount.
- 🌿 Cut the food into medium-sized or large pieces to absorb less fat.
- 🌿 Never saturate the fryer with food. Fry gradually, from portion to portion, and always use foods that are fried at the same time.
- 🌿 Following frying, the oil should remain on the heat for a couple of minutes to favour evaporation of the water it may contain.
- 🌿 Used oil is highly polluting. Recycle it!
- 🌿 Always use Olive Pomace Oil, in your stews, sauces or fries; it is healthy, affordable and durable.



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When you fry, use Olive Pomace Oil



Its origin: the olive tree.

Olive Pomace Oil comes from the olive tree, our greatest natural heritage.



Taste comes first.

With its neutral taste, Olive Pomace Oil boosts the original flavour of foods.



A really appetising crunchiness.

At a temperature that does not exceed 180° you get a crunchy covering and a spongy inside.



A healthy oil.

Its high content in oleic acid and antioxidants protects our health and preserves foods.



Excellent value for money.

Olive Pomace Oil offers greater durability in frying processes, making it much more affordable at a competitive price.



The perfect balance.

Its greater resistance at high temperatures means it is used in more than twice as many fries as more customary seed oils.



www.lafrituraperfecta.com

