Understanding Sauces

Sauces are defined as liquids that are thickened (usually) and perform these functions:

1. Add moistness to sometimes dry food (e.g. roasted or grilled meats)
2. Flavour and finish seasoning the product
3. Add richness to a dish (e.g. Salmon hollandaise)
4. Enhance the presentation

The basic five sauces (sometime called ‘mother sauces’ because you make lots of other sauces from them) are:

1. Béchamel or basic white sauce
2. Velouté or stock based white sauces (chicken, fish, veal)
3. Espagnole or brown sauce
4. Tomato
5. Butter sauces (e.g. Hollandaise sauce)

**NB:** An ‘all-in-one’ sauce is a quick, one stage version of a traditional roux or basic white sauce.

**What ingredients are used?**

Milk – always use cold milk. Trying to add hot milk to a sauce will make lumps! You can add flavourings to the milk (e.g. peppercorns, bay leaf, sliced onion) heat gently and let them infuse, but the milk should be cold before it is used.

Flour – plain flour should be used. You can also buy special sauce flour that has been milled in such a way that the flour can be added to hot liquids without going lumpy.

Fat - this prevents ‘lumps’ of flour forming in sauces thickened with flour. The fat surrounds the flour particles and allows them to mix with the liquid to produce a smooth result.

**What is a roux sauce?**

Roux is a combination of fat and flour cooked on the hob and is the thickening agent for many important sauces. The roux must be cooked to eliminate a starch taste from the flour.

By cooking the flour in the butter, the starch granules in the flour begin to break. Then when liquid is added, the granules absorb the liquid, thickening the sauce.
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What happens when starch is heated in water or liquids?

A process called gelatinisation takes place.

- Starch does not dissolve in liquids until heat is applied; the walls of the starch granules become soft and allow liquid to pass through.
- When the starch granules are first mixed in liquid they are suspended. If at this stage it is not stirred the starch granules stick together and sink.
- At around 60°C the starch granules begin to absorb liquid.
- At around 85°C the granules will absorb around 5 times their volume of liquid.
- Eventually so much liquid is absorbed that the granules swell, burst and make a paste with the liquid. The granules remain dispersed throughout the liquid. The paste is called a sol and the process is gelatinisation.
- Further heating makes sure all the granules have swollen and total gelatinisation takes place.
- As the starch sol cools down it becomes thicker, setting into a gel as the granules harden.

Pre-gelatinised starch is starch cooked and then dried in the factory on a drum drier or in an extruder making the starch cold water soluble.

Modified starch is a food additive which is prepared by treating starch or starch granules, causing the starch to be partially degraded. Modified starch is used as a thickening agent, stabiliser or an emulsifier. Apart from food products, modified starch is also found in pharmaceuticals, paper and many other applications.

Pre-gelatinised starch is used to thicken instant desserts, allowing the food to thicken with the addition of cold water or milk. Similarly, cheese sauce granules or gravy granules may be thickened with boiling water without the product going lumpy. Commercial pizza toppings containing modified starch will thicken when heated in the oven, keeping them on top of the pizza, and then become runny when cooled.

Modified starches are often used to increase the shelf-life of thickened products as problems can occur if wheat starch is used.

- The gel can begin to break down and allow liquid to seep out of the mixture. This is called syneresis.
- This happens because the process of gelatinization is reversed i.e. the starch and liquid are separating from each other. This is known as retrogradation.