

The Science Behind Sous Vide

Over the last few years, the Sous Vide method of cooking has been gaining in popularity. Initially professional chefs and restaurants were suspicious and unwilling to give it their 'seal of approval'. However, in one of those rare cases of logic prevailing over fantasy, in the foodie world, science has been winning them over. In fact, the idea goes back to ancient times and was re-hashed by NASA in the 1960's for heating food for their astronauts in the space program, but it has only been since the mid 1990's that the concept has really hit the mainstream. So, what is the science and how has it conquered the last bastions of culinary delicacy?

Well, we may not have always been aware of it, but we have all seen and eaten vacuum packed food. It is something that has been around for many years. Sometimes used as a means of preserving freshness- where there is no air, there are no germs or bacteria, so the logic goes- at other times it was just a convenient way of making quick food at home; and, yes, they are still making 'boil in the bag'. However, the science behind Sous Vide cooking is very different.

The theory is pretty simple; by cooking in a water bath, it is possible to more precisely control the temperature of the food. A piece of meat in an oven or frying pan is assaulted by hot air and surfaces far higher than it needs to cook successfully. It has to be really hot for the heat to permeate the meat and get to the very centre. The heat of the oven or the pan will sear and crisp the outside of the meat before the centre is even warm. In Sous Vide cookery, it is possible to have much finer control over the temperature that is *surrounding* the meat, and this is the key to its success. Being cooked in a much closer, smaller environment, the water temperature can be controlled immediately with just the slightest flick of a switch. Therefore, the meat can be cooked at the minimum temperature required to break down proteins, so peak tenderness can be achieved and concerns of over-cooking eliminated. Because the meat is cooked so slowly, even rare steaks will benefit from such gentle cooking. In traditional cooking, the rare centre will be surrounded by well done meat. In Sous Vide, the rare centre extends right out to the very surface- warmed right through, but cooked to perfection. Even tough cuts will be tender when cooked rare by the Sous Vide method.

Of course, there are other benefits. Because the food is vacuum packed, there is no decline in nutritional value. Everything is sealed in. There will be no water loss, so succulent meat is guaranteed. When meat is cooked in an oven, fatty acids will often oxidize. With Sous Vide, this danger is eliminated. Likewise, the break-down of certain vitamins and minerals will rarely occur when cooking at these lower temperatures. So, there you have it, success in a bag!