

## SOUS VIDE & LOW TEMP COOKING

Just like stewing and braising started as separate techniques and eventually became one in the same, sous vide and “low temperature cooking” are on an accelerated course to follow suit, with the lines between the two already being blurred within our common, culinary vernacular.

Sous vide is the French term for “under vacuum,” meaning any food that is sealed in a vacuum bag is technically “sous vide.” The confusion arises from the use of immersion circulators, which allow cooks to set a bath to a very precise temperature, accurate to within one tenth of one degree fahrenheit. Food cooked using this method is commonly sealed in a vacuum bag to remove air, which allows the heat from the circulating bath to be conducted more evenly to the food being cooked.

The real magic, however, comes from the precise control an immersion circulator gives a cook. Unlike any other cooking method, where the temperature is an ever fluctuating variable (except when boiling), an immersion circulator allows the cook to set a precise temperature, yielding a consistent, perfectly cooked product, every time.

Just think of what a huge leap forward it is for restaurants to no longer rely on a cook’s intuition when trying to serve a medium-rare steak. Now the steak can be pulled from the circulating bath, perfectly cooked, and served to the customer after a few finishing techniques are applied.

This, however, doesn’t mean there is no art to sous vide, or that skilled cooks are no longer needed. Only with an understanding of cooking fundamentals can the uniqueness of sous vide be realized, which is why the discussion of this technique was saved for last.

Although sous vide is considered a wet and slow cooking technique, it is not simply limited to tough cuts of meat. In fact, there are very few products that can’t be enhanced through sous vide cooking, merely because it allows for such precision, giving the cook complete control over texture and moisture retention.

Before we go into best practices for sous vide, I would like to discuss some common misconceptions.

First, there is still an alarming amount of professional within the culinary field who refer to sous vide as a “fad.” Although I have my suspicions as to why they would make this claim, I am not a mind reader nor a psychologist, so my suspicions are presumptuous at best.

What *I am*, however, is a professional chef who understands the importance of serving a consistent product. In fact, if you were to ask me what makes a restaurant, or any business for that matter, successful, my one word answer would always be “consistency.” McDonalds isn’t successful because they can cook a better hamburger

than you, they're successful because they're consistent. Every time you spend a dollar with McDonalds you know exactly what you'll get, for better or worse, which ultimately makes it easier to part with that dollar.

In fact, get a group of professional cooks together and the conversation will quickly turn into an argument over cooking technique and procedure. Simple topics like how to crack an egg or mop a floor can lead to screaming matches; (by the way, an egg should always be cracked on a hard flat surface and mopping should be done in a figure eight motion).

Let's take a step back from the argument and think about what's really going on; passionate cooks are arguing about the *best method* to arrive at a quality finished product. Cooks will never argue about what the best temperature to serve a fillet mignon is, (rare to mid-rare), but they will argue about the best method to *consistently achieve that result*.

This is the virtue of sous vide; it takes the guess work out of cooking by removing temperature fluctuation as a variable. If you want a mid-rare fillet of beef, simply drop it into a 55°C bath for one hour and you'll achieve a perfectly mid-rare steak, 100% of the time.

For *any technique* allowing for this level of consistency to be called a fad, is simply an ill-informed view point. The fact that professional kitchens will spend thousands of dollars on pots, pans, stoves, and blenders, but don't have a single immersion circulator is mind boggling. Technique is king because consistency is key. Since sous vide allows for such precision cooking, it's an important technique for any cook to have in their arsenal, and an immersion circulator is one of the most important cooking tools anyone can own.

With that said, being in the opposite camp, which holds up sous vide as *the only* method of cooking, is as equally misinformed. Many people think that food can just be placed in a circulating bath, set at the proper temperature, and then return to it at their leisure, as if it will never overcook. And while that's *technically* correct, (the food will never rise above the temperature at which the water bath is set), if not pulled within the proper time frame, the food will degrade in quality, losing flavor and forming an undesirable texture.

Although sous vide is not the "end all, be all of cooking," it does offer some distinct advantages including:

- Better flavor retention. Since most sous vide items are sealed in a bag, the flavors are contained within that environment during the cooking process, minimizing flavor loss that commonly occurs through seepage and evaporation.
- More tender proteins. As we discussed in the braising section, when meat is held under 120°F/50°C for a prolonged period of time, the same enzymes that impart

tenderness and flavorful qualities to meat during dry aging are “hyper-activated,” which in turn tenderizes the meat and gives it a more complex taste.

- No more “concentric circles of doneness.” Order a grilled steak mid-rare at any restaurant, cut it in half, and you’ll notice something inevitable occurs; only a portion of the steak is ever really mid-rare. This is because the temperature it was cooked at far exceeded the desired internal temperature of the steak, causing the outside portion to be well done, and the very center still a little on the rare side. With sous vide, food is cooked at (or close to) the temperature which it will be served, yielding an even doneness throughout.
- Ease of execution. While the preparation of sous vide foods can be extremely involved, there’s something to be said about having a steak perfectly cooked and ready to serve. It takes one more variable out of the equation, allowing the cook to focus on other finishing steps like final seasoning, executing side dishes, and presentation.

While sous vide gives the cook some pretty big advantages, there are two distinct disadvantages that you should be aware of. The first and most obvious, is that sous vide cooking is done at temperatures that are much lower than what is needed to cause the Maillard reaction, which is responsible for delicious-meat-browning-flavors. The easy fix for this is to sear the meat either before or after the sous vide process, or better yet, both.

The second disadvantage, which is a common reason people claim to not like food cooked sous vide, is uniformity of texture. While sous vide food done improperly can be “mushy,” a lot of people prefer the differing textures of classically cooked meat. This “uniformity of texture” can be easily balanced by adding some crunchy garnishes or components to the dish, or by using a secondary cooking method right before serving such as frying, searing, or charring on a grill or under a broiler.

The fact is, the two biggest objections to sous vide cooking can be solved with the application of a high heat, secondary cooking method. So in short, unless you’re specifically shooting for a subtlety in taste, always sear or brown your sous vide meats to achieve the maximum flavor possible.

Because of the control and consistency afforded by sous vide cooking, immersion circulators and water ovens will become common place in home kitchens, especially as their technology becomes widely available and affordable. This makes sous vide an important technique for any cook to both understand and master. The sooner you adopt sous vide cooking into your repertoire of techniques, the longer you’ll be able to enjoy this massive advantage before it becomes common place.

On the following pages are time and temperature charts that can be used as a quick reference when cooking common foods sous vide. Please note that while there are many different times and temperatures that will result in a well finished product, the ones listed below are those that I find work best for my taste and that of my customers.

Please feel free to experiment with different times and temperatures to best suit your needs.

### **Preventing “Warmed Over Flavor”**

When food is cooked and then exposed to oxygen, the flavors can start to break down and become stale, giving off an “old” or “reheated” flavor. Since this is caused by oxidation, the best way to prevent it from occurring is to keep sous vide products sealed in their individual bags until you’re ready to serve. Since low temp cooking takes a long time, it is usually necessary to cook a product in advance, chill in an ice bath, and reheat just before serving. Storing the sous vide product in the same bag in which it is was cooked, with the seal being broken just before or after being reheated to serve, will prevent off flavors and maximize quality.

An exception to this is any food that has been cured with sodium nitrite or nitrate, both of which allow the food to resist oxidation.

## SOUS VIDE CHARTS

### Beef

| Cut                        | Temperature C                     | Time                 | Notes  |
|----------------------------|-----------------------------------|----------------------|--|
| Fillet                     | 53C for prime,<br>55C for choice. | 45-60 Minutes        | If cooked too long, the texture can become "mushy."  |
| Ribeye -<br>Porterhouse    | 55C                               | 4-6 Hours            | Will become more tender with time. Sear before and after sous vide.  |
| Skirt Steak                | 56C                               | 4-8 Hours            | Under four hours or 56C results in a chewy Steak   |
| Flat Iron                  | 55C                               | 4-6 Hours            | Some flat irons contain large pieces of collagen that can make the steak seem chewy. A sliced presentation can help you spot this large collagen strands, and discard those portions before serving. |
| Short Ribs,<br>Shank, Tail | 60C or<br>65C                     | 48 Hours<br>24 Hours | 65C for 24 hours gets closer to the "traditional" texture of short rib whereas the 60C @48 hours make it eat more like a steak.  |

### Lamb

| Cut                  | Temperature C | Time      | Notes |
|----------------------|---------------|-----------|-------|
| Lamb Loin &<br>Chops | 55C           | 4-5 Hours | N/A   |
| Shank                | 60C           | 48 Hours  |       |

## Pork

| Cut             | Temperature C | Time     | Notes        |
|-----------------|---------------|----------|--------------|
| Pork Tenderloin | 56C           | 1 Hour   | Brine first. |
| Pork Loin/Chop  | 56C           | 2 Hours  | Brine first. |
| Shoulder        | 60C           | 48 Hours | NA           |

## Poultry

| Cut                  | Temperature C              | Time        | Notes  |
|----------------------|----------------------------|-------------|--|
| Turkey Breast        | 60C                        | 4 Hours     | Cooking too long results in a mushy texture.   |
| Turkey Legs & Thighs | 65C                        | 4 Hours     | Higher temperature is needed to break down connective tissue.  |
| Chicken Breast       | 60C                        | 4 Hours     | Extended period of cooking allows chicken breast to be safe to eat at a lower temperature.   |
| Chicken Leg & Thighs | 65C                        | 2-3 Hours   | Yields a moist, but somewhat traditionally textured braised leg/thigh.   |
| Duck Breast          | 57C (Farmed)<br>58C (Wild) | 1-1.5 Hours | Wild ducks get much more exercise through flight and tend to have a chewier breasts that needs to be cooked at a higher temperature. |
| Duck Legs (Confit)   | 85C                        | 6-8 Hours   | This high temperature yields a traditional, confit texture.  |

### Force Meats (Meatballs, Sausage)

| Cut           | Temperature C | Time                 | Notes  |
|---------------|---------------|----------------------|--|
| Poultry Based | 60C or<br>65C | 4 Hours<br>1-4 Hours | The 65C temperature will yield a more traditional texture. |
| Pork Based    | 60C           | 1-4 Hours            |  |

### Eggs

| Cut                    | Temperature C | Time    | Notes  |
|------------------------|---------------|---------|--|
| Pasteurized Eggs       | 57C           | 2 Hours | Will still have the texture and look of a raw egg but can safely be used.  |
| Soft Poached           | 62C           | 1 Hour  | Best yolk. White a little under.<br>Best all around “soft boiled egg.”<br>Yolk is set but still creamy with a firmer white.  |
|                        | 63C           | 1 Hour  |  |
|                        | 64C           | 1 Hour  |  |
| Best Egg White Texture | 65C           | 1 Hour  | White has the best texture at this temperature but the yolk is no longer runny.  |
| Rollable Yolk          | 66C           | 1 Hour  | Yolk is malleable and can be rolled into sheets.   |
| Hard Boiled            | 75C           | 1 Hour  | Yields a traditional hard boiled egg texture although it can be harder to peel and sometimes smell of sulfur since it is over cooked. Traditional hard boiling is preferred. |

## Fish & Shellfish

| Cut      | Temperature C | Time       | Notes   |
|----------|---------------|------------|---|
| Salmon   | 55C           | 20 Minutes | Some chef's like to cook their salmon at a much lower temperature, but I prefer the more classic texture of mid rare.                           |
| Cod      | 55C           | 20 Minutes | See Salmon  |
| Scallops | 50C           | 30 Minutes | Brine first and then finish by searing.   |
| Lobster  | 59.5          | 15 Minutes | Cover lobsters with boiling water first and then cover with a tight lid. Let sit for five minutes. Remove tail meat and sous vide in butter.    |
| Shrimp   | 58C           | 20 Minutes | Vacuum pack with butter and seasoning of choice.  |
| Halibut  | 50-55C        | 20 Minutes | Creates a delicate, moist texture that's very different from traditional pan roasting. Add butter to the bag before cooking. Serve immediately. |