Beginning Sous Vide

Low Temperature Recipes and Techniques for Getting Started at Home

By Jason Logsdon

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Preface

Thanks for downloading our PDF!

This PDF contains the first 6 chapters from *Beginning Sous Vide: Low Temperature Recipes and Techniques for Getting Started at Home*. It also includes the full Resources section and the entire "Beef Roasts and Tough Cuts" section and it's corresponding Time and Temperature Chart.

Please pass this guide on to anyone you know that might benefit from reading it.

The full book is available as a paperback cookbook from Amazon.com or as a PDF download. In addition to the first 6 chapters that are included in this PDF we include another 150 pages of content.

The additional content has recipes for beef, pork, fish, vegetables, chicken, duck, lamb, and turkey. **This brings the total recipe count over 100 sous vide recipes.**

It also has time and temperature combinations for each of those subjects.
That's over 400 combinations for 175 cuts of meat and types of fish and vegetables.

If you enjoy this PDF and want more information we hope you'll check out the full version of it.

Thanks, and happy sous viding!
Jason Logsdon
www.CookingSousVide.com

Intro to Sous Vide

Sous vide is quickly becoming one of the hottest new culinary techniques.
Here are the ins and outs you need to know to get started.

If you have any questions you can ask them in the “How-Tos” section on our website. Just post your question and other sous vide cooks will weigh in with their answers.

You can find it on our website at:
www.cookingsousvide.com/how-to

History of Sous Vide

Sous vide, or low temperature cooking, is the process of cooking food at a very tightly controlled temperature, normally the temperature the food will be served at. This is a departure from traditional cooking methods that use high heat to cook the food, which must be removed at the exact moment it reaches the desired temperature.

Sous vide was first used as an upscale culinary technique in kitchens in France in the 1970s and traditionally is the process of cooking vacuum sealed food in a low temperature water bath. This process helps to achieve texture and doneness not found in other cooking techniques, as well as introducing many conveniences for a professional kitchen. Sous Vide has slowly been spreading around the world in professional kitchens everywhere and is finally making the jump to home kitchens.

As sous vide has become more popular and moved to the home kitchen the term now encompasses both traditional "under vacuum" sous vide and also low temperature cooking. Some preparations rely on the vacuum pressure to change the texture of the food but in most cases the benefits of sous vide are realized in the controlled, low temperature cooking process. This means that fancy vacuum sealers can be set aside for home sealers or even ziploc bags.

How it Works

The basic concept of sous vide cooking is that food should be cooked at the temperature it will be served at. For instance, if you are cooking a steak to medium rare, you want to serve it at 131°F.

With traditional cooking methods you would normally cook it on a hot grill or oven at around 400°F-500°F and pull it off at the right moment when the middle has reached 131°F. This results in a bulls eye effect of burnt meat on the outside turning to medium rare in the middle. This steak cooked sous vide would be cooked at 131°F for several hours. This will result in the entire piece of meat being a perfectly cooked medium rare. The steak would then usually be quickly seared at high heat to add the flavorful, browned crust to it.

There are two basic components to sous vide cooking at home: temperature and time. Each one of these can affect the end quality, texture, and taste of sous vide dishes. Learning to understand how they affect the food is one of the most important things as you begin sous vide cooking.

Temperature

All sous vide cooking is done at temperatures below the boiling point of water and normally not above 185°F. You usually cook the food at the temperature you want it served at, so most settings are between 120°F and 185°F, depending on the food being prepared.

While the range of temperature used in sous vide is much less variable than for traditional cooking, the precise control of the temperature is of great importance. When you set your oven at 400°F it actually fluctuates about 50 degrees, sending it between 375°F and 425°F, which is fine when cooking at high temperatures. When cooking sous vide, the temperature of the water determines the doneness of your food, so a 50°F fluctuation would result in over cooked food. Most sous vide machines fluctuate less than 1°F and the best are less than 0.1°F.

This precision is why many sous vide machines are very expensive. However, there are many more home machines available in the last few years, some good do-it-yourself kits, and even some ways to accomplish “accurate enough” sous

vide on the cheap. We will discuss many of your options in our *Sous Vide Equipment* chapter.

Time
Cooking tenderizes food by breaking down its internal structure. This process happens faster at higher temperatures. Because sous vide is done at such low temperatures the cooking time needs to be increased to achieve the same tenderization as traditional techniques.

Also, your window of time to perfectly cooked food is much longer than with traditional cooking methods because you are cooking the food at the temperature you want it to end up at, rather than a higher temperature. This also allows you to leave food in the water bath even after it is done since keeping it at this temperature does not dry out the food, up to several hours longer for tougher cuts of meat. However, be careful not to take this concept too far as food can still become overcooked by sous vide, many times without showing it externally.

Temperature and Time Together
The power of sous vide cooking comes from precisely controlling both temperature and time. This is important because of the way meat reacts to different temperatures.

At 120°F meat slowly begins to tenderize as the protein myosin begins to coagulate and the connective tissue in the meat begins to break down. As the temperature increases so does the speed of tenderization.

However, meat also begins to lose its moisture above 140°F as the heat causes the collagen in the cells to shrink and wring out the moisture. This happens very quickly over 150°F and meat becomes completely dried out above 160°F.

Many tough cuts of meat are braised or roasted for a long period of time so the meat can fully tenderize, but because of the high temperatures they can easily become dried out. Using sous vide allows you to hold the meat below the 140°F barrier long enough for the slower tenderization process to be effective. This results in very tender meat that is still moist and not overcooked.[1]

Benefits of Sous Vide
Just like any method of cooking there are many reasons to use the sous vide technique, depending on what you are trying to accomplish.

Moisture
Because food cooked in the sous vide style is sealed it does not lose moisture or flavor to the cooking medium. The sous vide pouch holds in all the liquid released by the food. This is especially apparent when compared to traditional techniques such as roasting and braising where the meat has a tendency to dry out.

Also, as discussed in the *Temperature and Time Together* section, the low heat used in sous vide prevents the collagen from constricting and forcing out more moisture. Controlling the collagen combined with the vacuum sealing results in very moist foods.

Tenderness
The sous vide technique allows you to cook tough cuts of meat at an incredibly low temperature, allowing you to tenderize them while remaining perfectly medium-rare. This is very effective for shanks, roasts and other pieces of meat that are typically braised or roasted, but often dry out or get overcooked in the process.

Texture
Using sous vide to cook food also exposes new textures. This is caused by two things. First, the vacuum sealing process can

make lighter foods denser, like watermelon. Second, the lack of high heat used in cooking can result in silky and smoothly textured food that is impossible to replicate with traditional cooking techniques.

Convenience
Sous vide introduces many time saving and general convenience strategies for the home cook. We discuss several in more detail in the *Tips and Tricks* section ranging from "Beer Cooler Sous Vide" to hassle-free freezer steaks.

Disadvantages of Sous Vide

Like any culinary technique, sous vide cooking also has its drawbacks. Fortunately, the first two are slowly disappearing as sous vide becomes a more prevalent technique and the affect of the third can be minimized with planning.

Information
Even though the amount of information about sous vide has increased a lot over the past few years it can still be hard to find specific information. While there is information out there on websites, forums, books, and magazines, there often isn't a single repository you can use to collect it. This has meant a lot of time lost on research before even getting started.

This book will be enough to get you familiarized with sous vide and started on many recipes. It will also direct you where to find more information as you become more experienced with the technique.

High Cost
The second disadvantage is the high cost of good sous vide equipment. Until recently, the only effective way to do sous vide cooking was by using thermal immersion circulators or thermal circulating water baths, both of which run more than a thousand dollars.

Now, some less-expensive alternatives are turning up, such as sous vide cooking controllers, that reduce the cost of getting started to a few hundred dollars. In the last year there have also been several high quality devices released specifically for the home chef that offer very good temperature control.

This book covers many different options for getting started in the *Sous Vide Equipment* chapter.

Time
The third potential disadvantage is the length of time required to cook some items with sous vide. Even more than braising or roasting, most sous vide cooking requires long periods of time. For many tougher cuts of meat, such as short ribs or brisket, it is recommended you cook them at about 130°F for around 36 hours. Of course, the majority of this time you don't have to do a single thing to them and the energy expended is minimal. There are also several types of sous vide cooking that can be done in 30 to 60 minutes, especially for fish and chicken dishes.

Hype
Since sous vide is currently a hip technique many people talk about how it is the future of cooking. While sous vide can do many extraordinary things it will never replace traditional techniques, any more than the oven replaced grilling.

Many people try to capitalize on the popularity of sous vide by trotting out various un-inspired preparations. Just be aware that like any cooking technique sous vide can be done poorly, especially when applied to the wrong dishes, or by a skilled chef it can be done exquisitely.

Anytime you approach a dish you should think about what is the best technique to use, and sous vide will not always be the answer.

Basic Sous Vide Technique

At the heart of sous vide cooking is a very simple process. While there are variations within each dish, almost every sous vide meal follows the same steps.

Flavor the Food

Just like many traditional methods, you often times flavor the food before cooking it. This can be as simple as a sprinkling of salt and pepper or as complicated as adding an elaborate sauce, spice rub, or even smoking the food. Depending on the type of seasoning it can either be rubbed directly onto the food itself or added into the pouch with the food.

If you are using a normal home vacuum sealer and want to add more than a little liquid, freeze the liquid before adding it to the pouch. This way the process of vacuum sealing will not suck out the liquid. Otherwise, you can normally use food grade ziploc bags to seal food with liquids.

In our various food sections we give some tips and suggested recipes for flavoring your food. But remember, just like traditional cooking a lot of the fun comes with experimenting.

Seal the Food

Once the seasoning and food have been added to the pouch, remove the air and seal it closed. Removing the air results in closer contact between the food and the water in the water bath. This helps to facilitate quicker cooking since water transfers heat more efficiently than air.

Sealing the food can be done with anything from ziplocs or food grade plastic wrap to a FoodSaver Vacuum Sealer or even a chambered vacuum sealer.

Some vacuum sealers have different strengths of vacuum to seal the bag and can be used to affect the texture of some types of food.

Various vacuum sealing options are discussed in the *Vacuum Sealers* section of the *Sous Vide Equipment* chapter.

Heat the Water

Simply bring the water bath up to the temperature you will cook at. This water bath will normally be the same temperature that you will want your food to end up at.

Depending on the type of heat regulator, you may be able to have the food in the water while it heats. For others, it is best to preheat the water before placing the food in it due to early fluctuations in temperature.

The *Temperature Regulation* section of the *Sous Vide Equipment* chapter discusses the various temperature regulators and water baths available from a pot on the stove to a professional immersion circulator.

Cook the Food

Put the food pouch in the water and let it cook for the amount of time specified in the recipe or on the Time and Temperature chart. For items that are cooked for longer amounts of time it can be good to rotate the food every 6 to 10 hours, especially if you are using less precise sous vide equipment.

At some higher temperatures the sous vide pouches can float due to air released from the food. If that happens you might have to use a plate or bowl to weigh them down.

Finish the Dish

To get a good finish and texture to your food, especially meats, many times it is advisable to quickly sear the meat in a saute pan or with a blow torch. Some meals also call for other methods of finishing the food, such as breading and deep-frying for chicken or mashing potatoes with cream and butter for mashed potatoes.

You can also quickly chill the food in an ice bath and then refrigerate or freeze the food for later re-heating.

Sous Vide Safety

Safety is always a concern with any cooking method.
Here are the basics you need to understand so you can begin to see how sous vide and food safety interact.

If you are interesting in staying up to date with the work we are doing in sous vide feel free to follow us on Twitter. We post articles we find interesting, links to new recipes, and other items of interest.

We are @jasonlogsdon_sv

Sous vide is a new and largely untested method of cooking. It potentially carries many inherent health risks that may not be fully understood. We have done our best to provide the latest information and what is currently understood about this form of cooking.

However, we feel that anyone undertaking sous vide cooking, or any other method of cooking, should fully inform themselves about any and all risks associated with it and come to their own conclusions about its safety. Following anything in this book may make you or your guests sick and should only be done if you are fully aware of the potential risks and complications.

There are two main concerns when it comes to sous vide cooking, they are pathogens and the dangers of cooking in plastic.

Pathogens, Bacteria and Salmonella

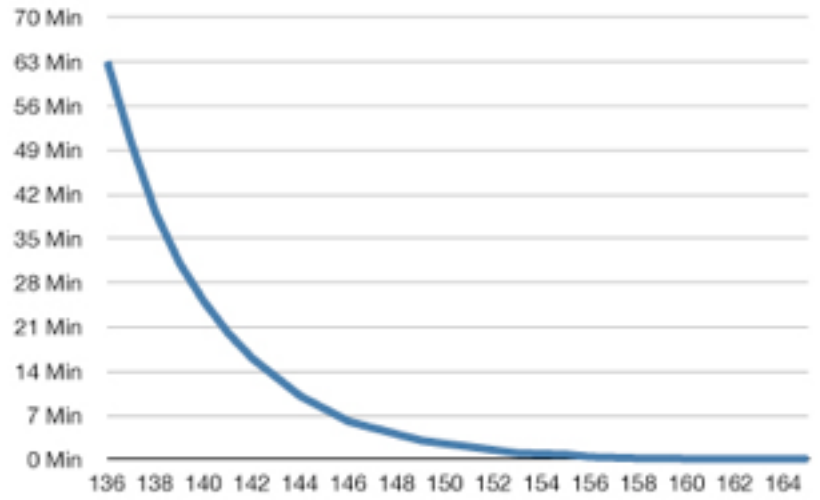
One large safety concern with sous vide that has been studied in great detail deals with the propagation of bacteria at various temperatures, especially salmonella. Salmonella only thrive in a certain range of temperatures, from about 40°F to 130°F, often referred to as the "danger zone".

This danger zone is why we refrigerate our foods until an hour or so before we are ready to cook them. It is also why we cook our foods to specific temperatures before we eat them.

The biggest misconception about bacteria and the danger zone is that any food in the temperature range is not safe and as soon as you move above 130°F the food instantly becomes safe. The truth is that the bacteria begin to die in direct relation to the temperature they are exposed to.

The best way to visualize this is to think about how we humans react to heat. We do fine in climates where the temperature is below 100°F. However, once it begins to climb around 110°F or 120°F you begin to hear about deaths in the news due to heat stroke. If the temperature were to raise to 200°F stepping outside for more than a few seconds would kill you.

Bacteria behave in the exact same way. They begin to die at around 130°F to 135°F and 165°F just about instantly kills them. You can see this in the chart below, based on the USDA data[2] replicated in the *Required Cooking Time* section. At 136°F it takes about 63 minutes for your food to be safe and at 146°F it only takes 7 minutes to become safe.



This concept is why the USDA recommends that chicken is cooked to 165°F, because at that temperature it takes only a few seconds for enough bacteria to die to achieve acceptable safety levels. In comparison, at 136°F it takes 63.3 minutes at that temperature to achieve the same safety level, something that is virtually impossible using traditional cooking methods. Using sous vide makes it possible to heat chicken

and other meats to an internal temperature of as low as 130°F and hold it there long enough to kill the bacteria.

Please remember that this is assuming that your thermometer is exact and the water temperature is completely steady. I recommend always cooking foods at a little higher than the minimum temperature and a little longer than the minimum cooking time in order to account for any variance in temperature your equipment causes.

For more information about how long chicken, poultry, and beef need to be held at certain temperatures please refer to the USDA Guide mentioned in our *Resources* chapter. For more explanations of how this works you can reference the excellent guides by Douglas Baldwin[3] or Serious Eats[4] mentioned in our *Resources* chapter.

Plastic Safety

Another main concern of sous vide is cooking in plastic and whether or not this is a dangerous practice. Many scientists and chefs believe that cooking in food grade plastic at these low temperatures does not pose any risk, the temperature is about equivalent to leaving a bottle of water in your car, or in a semi during transport, in summer.

However, I find it hard to believe that we know everything about how plastic reacts to heat, water, our bodies, and the environment. As such, I encourage you to read up on the safety of plastic in sous vide and plastic in general and come to your own conclusions about the safety of using these techniques or consuming products packaged or shipped in plastic.

Sous Vide Equipment

Sous vide cooking doesn't require much equipment, but what you do need can vary greatly in cost and function. Here are the main types of equipment needed and their costs.

We also have up to date information about sous vide equipment available on our website, including reviews.

You can see them here:
www.cookingsousvide.com/info/sous-vide-equipment

Equipment Options

There are two types of equipment you need for sous vide cooking: heat regulators and sous vide pouches. Many people interested in learning sous vide cooking are turned off by the idea of expensive sous vide equipment. While it is true that much of the higher end equipment can get costly, there are now several less-expensive or even free options available.

We look at the entire range of options available when purchasing sous vide equipment, from using a pot on the stove with ziploc bags, to $150 "sous vide controllers", to $1,000 thermal immersion circulators and chambered vacuum sealers.

Just remember, you do not have to bankrupt yourself on expensive sous vide equipment. Start small and test the waters. If you like sous vide cooking then it might be worth spending a little more for some dedicated sous vide equipment.

If you are not concerned with the details of the specific equipment types, feel free to skip ahead to our *Beginning Home Setup* in the next chapter for our complete setup recommendations.

Food Sealers and Sous Vide Pouches

Note: please see the *Plastic Safety* section in our *Sous Vide Safety* chapter for information about cooking in plastic.

Sealing your food in a sous vide pouch accomplishes many things. It can change the texture and density of certain foods. It can also make marinades and seasonings absorb more quickly into the food. However, with most dishes its main purpose is to ensure that the water in the water bath is as close to the food as possible and air is not interfering with the cooking process.

There are many ways to seal your food and here are the most popular methods with their advantages and disadvantages, as well as their corresponding prices. While there are certain applications that can only be accomplished with a powerful vacuum sealer, such as compressing foods, the majority of the sous vide benefits are gained through the low-temperature cooking and not from the sealing itself. This means that for most dishes a food-grade ziploc bag will be just as effective as a chambered vacuum sealer.

Food Grade Ziploc Bags

A great low-cost method of sealing your food is food-grade ziploc bags. They have a few drawbacks but work great for short cooked foods, especially if you are just getting started with sous vide cooking and do not want to spend any up-front money. In most cases sealing your foods with ziploc bags is also a lot easier than using a vacuum sealer.

The ziploc bags will normally have more air in them than the vacuum sealed bags but you can get out almost all of the air by holding the bag underwater, except for the final corner before sealing it. It is also easy to seal in liquids or marinades.

Ziploc bags do run into trouble when used for higher temperature cooking and you will need to check what the bag is rated for before cooking above 150°F to 160°F.

In general I recommend using Ziploc brand bags since they are normally of higher quality than the cheaper brands and hold up better under heat. The freezer Ziplocs with the normal double seal work best in my experience and are normally rated for reheating in the microwave, which is normally at higher temperatures than sous vide.[5]

Food-Grade Plastic Wrap

The other easy method of sealing food for sous vide cooking is to wrap the object in many layers of food grade plastic

wrap. This method will allow easy transfer of heat, similar to the vacuum sealed food, but the seal isn't nearly as strong. It will work fine for sous vide cooking for short amounts of time.

This method can also be used to shape foods such as salmon rolls, galantines, and other traditionally cylindrical foods.

Standard Home Vacuum Sealers

Many home cooks prefer a standard home vacuum sealer like a FoodSaver. These vacuum sealers work by inserting the opening of the sous vide food pouch into a small depression in the machine. The sealer then sucks the air out of the pouch and seals it using a heating element. They are the most cost effective method of vacuum sealing your food.

Preparing food with a standard home vacuum sealer gives you the advantage of sucking all the air out of the bag and ensuring maximum heat transfer between the water and the food. The biggest downside to these vacuum sealers is that the process of sucking out the air will also suck out any liquid in the pouch, making it much more difficult to tightly seal foods with marinades. Many home chefs will still use these sealers but seal the bag more loosely if there are marinades or liquids in the pouch, or the liquid can be frozen first.

There are many types of standard vacuum sealers, with Tilia FoodSavers being the most common brand. Tilia FoodSavers make a number of different vacuum sealers, most sold between $100 and $200. Some other less-expensive vacuum sealers are the Rival Seal A Meal and the Deni Vacuum Sealer, though they are usually of lower quality than the FoodSavers[6].

Chambered Vacuum Sealers

The preferred method of sealing your food for professional chefs is to use a chambered vacuum sealer. These industrial vacuum sealers make use of a large vacuum chamber in which the sous vide food pouch is placed. You then close the chamber and all air is removed and the bag is sealed. These are the kind of vacuum sealers normally used in professional kitchens.

The biggest benefit of chambered vacuum sealers is the ability to easily vacuum seal food with liquids or marinades in it, something the lesser sealers have trouble with. Another benefit stems from its finer tuned pressure controls, allowing you to manipulate the density of certain foods. However, these abilities come at a high cost and many chambered vacuum sealers are over $1,500.

Both Industria, PolyScience and MSA sell respected chambered vacuum sealers under their brands and the Minipack-torre MVS31 chamber vacuum sealer is highly regarded.

Temperature Regulation

Proper temperature control of the water bath is critical to effective sous vide cooking. Temperature fluctuations of a few degrees can drastically change the texture of many dishes, especially eggs and fish.

There are several ways to regulate water temperature and we'll discuss the positives and negatives of the main ones. The techniques range from inexpensive and inexact to incredibly precise with the price tag to match.

Thermal Immersion Circulators

A thermal immersion circulator is a heating device that you put into a container of water that will keep the water at a uniform temperature. Thermal circulators were originally developed for use in laboratory work where precision heating is needed for many tasks.

Thermal immersion circulators are probably the best piece of equipment you can get for regulating water temperature in sous vide cooking, but also the most expensive.

How They Work

A standard thermal immersion circulator consists of a heating coil with an attached pump. The heating coil and pump are inserted into a body of water and a temperature is set on the immersion circulator. The heating coil will keep the water at the set temperature while the pump circulates the water to eliminate any hot or cold spots.

Each thermal immersion circulator has its own margin of error for holding the temperature. Most low-end circulators will hold the water at a +/- 1 degree Celsius, while some high-end circulators can hold the temperature to within +/- 0.01 degrees.

Advantages

The biggest benefit of thermal immersion circulators is their precision. Whether the circulator can regulate the heat from within 1 degree celsius or 0.01 degree, it is more than acceptable for perfect sous vide cooking.

Most thermal immersion circulators can also be attached to the edge of a normal kitchen pot, making them very convenient to use in sous vide cooking at home. They can also heat large amounts of water, up to 5x that of some other devices. They also tend to heat very quickly compared to other options.

Disadvantages

The biggest issue with thermal immersion circulators is the high cost of purchasing them. They routinely sell new ones for $800 to $1,500, and used ones are $200 to $600 which is pretty expensive for a piece of home kitchen equipment, especially one specific for sous vide cooking.

A minor negative of thermal immersion circulators is the evaporation due to not having a sealed lid. You can use foil or saran wrap to try and seal it better but you will still suffer some evaporation. This normally isn't a big deal unless you are using a 24+ hour sous vide preparation and then you will have to remember to occasionally add water.

Where to Buy

Probably the best known brand of thermal immersion circulators is PolyScience, who has been tops in the professional market for awhile and has just released an

immersion circulator for home chefs sold through Williams-Sonoma[7]. Another well known company is Brinkmann, who makes the Lauda immersion circulators. Sur La Table also has their own line of immersion circulators manufactured by Julabo, both of which normally have high quality equipment.

Another option if you're mechanically inclined is to make one yourself. It can even cost under $100. Seattle Food Geek has put together a great guide for this[8].

You can also look for used thermal immersion circulators on eBay and from scientific lab resell sites. If you do buy a used thermal immersion circulator, be sure to clean it properly since you never know what chemicals were used in it previously. For that reason, some people refuse to cook with previously used immersion circulators; do so at your own risk.

Thermal Circulating Water Bath

The other heavy duty way to regulate water temperature in sous vide cooking is through the use of a thermal circulating water bath. These devices are similar to the thermal immersion circulators except they come in their own enclosed container for holding the water. Like the immersion circulators, water baths were originally developed for the scientific lab where maintaining precision temperatures can be critical.

How It Works

A normal water bath consists of a lidded container of water with a built in thermal immersion circulator or other heating and circulating device. The container holds the water, and in sous vide cooking the food in a pouch, while the heating unit regulates the temperature of the water and removes all hot and cold spots.

Advantages

Since the circulating water bath has a sealed container it can help reduce evaporation during very long sous vide preparations. They also more easily keep the temperature of the water constant throughout the sous vide process since it is enclosed, requiring less electricity.

Every circulating water bath has its own margin of error for holding the temperature. Most low-end circulators will hold the water at a +/- 1 degree Celsius, while some high-end water baths can hold the temperature to within +/- 0.01 degrees. Either of which is more than enough precision for sous vide cooking.

Disadvantages

Much like the thermal immersion circulators, the largest issue with circulating water baths is their expense. They are also in the $800 to $2,000 range for new equipment.

Where to Buy

PolyScience makes well known thermal water baths[9]. Sur La Table also has a line of circulating water baths.

Another option is the Sous Vide Supreme "water oven" which is basically a non-circulating water bath and has many of the same advantages and disadvantages but it runs at around $400[10].

You can also look for used thermal water baths on eBay and sites that resell scientific lab equipment. If you do buy a used

thermal water bath, be sure to clean it well since you never know what chemicals were used in it previously. For that reason, some people refuse to cook with previously used water baths; do so at your own risk.

Sous Vide Cooking Controller

While thermal immersion circulators and thermal circulating water baths are the undisputed leaders of precision temperature control they are out of the price range of many home cooks. Cooking controllers address this issue by providing decent temperature control for a fraction of the price. This device is pretty simple in principal and is used with a rice cooker, crock pot, slow cooker, or other similar device many home cooks have on hand.

How It Works

The sous vide cooking controller is basically a plug with an automated on / off switch that is controlled by a thermometer. Here are the four steps to using it:

1) Take your slow cooker, crock pot or rice cooker and fill it with warm water.

2) Plug your slow cooker into the outlet on the sous vide cooking controller and turn it on to its highest setting.

3) Put the thermometer attached to the cooking controller into the water in the slow cooker.

4) Set the cooking controller temperature display to the temperature you want to maintain during the cooking process.

5) Finally, put the vacuum sealed food into the crock pot and let it cook for the specified time.

The sous vide cooking controller then turns the crock pot on and off to keep the temperature of the water in the slow cooker at a stable temperature.

Advantages

The low price tag is probably the biggest benefit to using a sous vide controller. Most are between $110 and $180, depending on the control desired. Both Auber Instruments and SousVideMagic[11] sell similar types of sous vide controllers that are easily within the price range of most home cooks.

Sous vide controllers are used with your existing crock pots, slow cookers, and rice cookers, check the sous vide controller for specific brands supported. This is definitely a nice convenience and helps save money.

Most sous vide controllers can regulate the temperature to within 1 degree celsius, which is adequate for most sous vide preparations.

Disadvantages

The biggest downside of sous vide controllers is the lack of precision. While most of the producers claim their controllers maintain steady, even heat, they aren't as precise as the more expensive thermal immersion circulators or the thermal water baths, especially in short time frames. This is very noticeable in food like fish and eggs.

However, most people, including us, feel that the sous vide controllers do have enough precision for the home cook to produce excellent results in sous vide cooking, especially for someone looking to try sous vide out before investing large amounts of money.

Where to Buy
SousVideMagic makes a very popular sous vide controller and has very good customer service, tell Frank that CookingSousVide.com sent you. Auber Instruments also sells sous vide controllers for comparable prices. You can also find plans online to make your own.

Sous Vide on the Stove
The cheapest, and least precise, way to do sous vide cooking is directly on your stove. It only requires a stove, a thermometer, some hot water, some cold water, and a good amount of patience.

How It Works
Fill a pot with luke warm water. A larger pot is better since it will hold its temperature when the vacuum sealed sous vide packet is added and it will also be more stable while cooking.

Place a thermometer in the water, preferably a digital meat thermometer with a long cord so the thermometer is convenient and easy to read.

Add either hot water or cold water to bring the pot to the desired temperature. You can also briefly turn a burner on or add ice cubes if you need to move the temperature quickly.

Add the vacuum sealed sous vide packets and bring the water back up to the temperature you need.

Leave the food in the water for as long as the recipe says. Be sure to regularly check the water temperature to make sure it is where you want.

Advantages
The only real advantage of doing sous vide on your stove is that it is very cheap and doesn't require any special equipment.

Disadvantages
Cooking sous vide this way is very imprecise. No matter how diligent you are about checking the water temperature and adjusting it, it will definitely fluctuate by several degrees, and most likely 5-10 degrees. This can play havoc with the texture and doneness of certain types of sous vide food.

It also takes a lot of work to maintain a specific water temperature. You have to constantly be by the water, checking the temperature and adjusting it. This is fine for short cooking sous vide items like fish or some vegetables but for a longer term item it quickly becomes impractical.

Tips for Sous Vide on the Stove
Use a wooden spoon to regularly stir the water, making sure to go up and down as well as side to side. This will help to better even out the temperature of the water.

A larger pot will also hold its temperature better and have a more stable temperature.

“Beer Cooler” Sous Vide

Another very inexpensive way to do sous vide cooking at home is by using the “Beer Cooler” sous vide method. It was first popularized by J. Kenji Lopez-Alt of Series Eats[12]. I’ll summarize the method below but for a detailed discussion of it you can view their article directly.

While there are many limitations to “Beer Cooler” sous vide, it is a great way for someone interested in sous vide to try it out without any upfront investment.

How It Works

In general, the beer cooler method takes advantage of a cooler’s ability to maintain temperature. You heat water to the temperature you want to cook at and fill the beer cooler with it. At that point you can place the food you are cooking into it, in a sous vide pouch, and close the cooler. Most coolers will maintain its temperature for several hours, cooking the food.

Advantages

The main advantage is price. If you already have a cooler and ziploc bags then it is basically free to try.

Another advantage is that the water coming out of many home faucets is around 131°F-139°F, meaning it is the perfect temperature to cook steak in. If your faucet is in that range it just means you crank up the tap water, fill the cooler, and throw in the steak. It can be very simple.

Disadvantages

If your faucets run cold or you want to cook something at a higher temperature it can be a pain to get the water to the temperature you want.

The temperature also drops, albeit slowly, over time making it unsafe to cook with at the boundaries of food safety. This also makes it hard to cook long-time items with as the temperature will not hold up for multiple days.

Common Sous Vide Setups

With all the options for sous vide equipment available it can be hard to determine how to get stared. Some setups run thousands of dollars while others are only a few hundred. Here are a few of our recommended sous vide setups and the associated costs with each.

Advanced Home Sous Vide Setup

This home sous vide setup has everything you need to create great sous vide results in your own kitchen. It's the most precise method and allows you to have great results on the more finicky dishes like eggs and fish. It also allows you to cook larger amounts of food because of its increased capacity.

If you are looking for a very good home sous vide setup then this one is for you.

Food Sealing

Home vacuum sealers can be found for $125+ and they make sous vide cooking much easier. While they fall short of the power and features of a chambered vacuum sealer they are about a thousand dollars less expensive and bring enough features to make it worth while. There are also many more reasons to get a vacuum sealer. We recommend the FoodSaver V2440, it's not the most recent version but it is consistently the highest rated and is less-expensive than the newer versions[13].

Water Bath and Temperature Control

For this home sous vide setup we recommend an immersion circulator. They are very, very precise, heat up fast, and can heat large amounts of water. We have used the PolyScience Sous Vide Professional, which is built for the home cooks, but there are other circulators with high marks as well[14].

For your water bath you can either use a large pot or we suggest getting a sous vide water tub. They look like plastic storage tubs but are food grade quality. They normally run from $20 to $40 and will allow you to cook a larger amount of food than in a pot.

Cooking the Food

With this sous vide setup there are only two "hands-on" cooking moments required. The first is to preheat the water bath, this will help to keep a steady temperature in the water bath due to the way the sous vide controller works. The second is during long-cooking dishes when you occasionally rotate the food in the water bath, about every 6-10 hours if possible, and add some fresh water. That is all the effort you have to expend to have very high-quality sous vide food.

Total Cost

- Vacuum Sealer: $150
- Immersion Circulator: $800-$1000
- Water Tab: $20 - $40

Total Cost: $1000 - $1,200 for the complete setup

Beginning Home Sous Vide Setup

This home sous vide setup has everything you need to create decent sous vide results in your own kitchen. It's by far the most cost efficient method for the home cook and requires very little effort to set up and use.

While this method can cost several hundred dollars to set up from scratch, many cooks already have some of the equipment on hand. Most of the equipment in this setup can also be reused for non-sous vide purposes so they are not just a single-technique item.

If you are looking for an inexpensive but relatively effective sous vide setup then this one is for you.

Food Sealing

For beginning sous vide it makes sense to start off with ziploc bags, as long as you feel comfortable using them. If you feel the need to upgrade to a vacuum sealer then you can approach that at a later date.

Water Bath and Temperature Control #1

If you already have a large crock pot or rice cooker then we recommend using this Water Bath and Temperature Control.

The best water bath is a typical self-heating device, rice cookers are the best but crock pots also work very well. As long as the chamber is big enough for the size of food you will normally be cooking then you should be fine. If you currently own a rice cooker or crock pot then go ahead and use it, if not then I recommend starting with a rice cooker because it has better distribution of heat.

The most cost-effective way to control temperature is with a sous vide controller. There are many different brands but SousVideMagic has a good reputation and focuses almost exclusively on sous vide cooking. The sous vide controller works by measuring the temperature of your water bath and turning your heating device (the crock pot or rice cooker) on and off to maintain a consistent temperature. I've had great results with this even for short ribs that were cooked for over 48 hours.

Water Bath and Temperature Control #2

If you do not have a large crock pot or rice cooker then we recommend looking into the Sous Vide Supreme[15]. It is about the same cost as buying a SousVideMagic and a good rice cooker. It looks a little more professional or “appliance like” sitting on your counter and has very good temperature controls. Either this or the SousVideMagic will work well for you to get started.

Cooking the Food

With this sous vide setup there are only two "hands-on" cooking moments required. The first is to preheat the water bath, this will help to keep a steady temperature in the water

bath due to the way the sous vide controller works. The second is during long-cooking dishes when you occasionally rotate the food in the water bath, about every 6-10 hours if possible. That is all the effort you have to expend to have very high-quality sous vide food.

Total Cost

- Ziploc Bags: $5
- Sous Vide Controller: $150
- Crock Pot / Rice Cooker: $150
- or Sous Vide Supreme: $450

Total Cost: $300 to $450 for a complete sous vide set up, assuming you don't have any of the equipment already.

Cheap Sous Vide Setup

One of the big misconceptions about sous vide cooking is that you have to spend thousands of dollars to do it. While it is possible to spend that much money you can also get a very good sous vide setup for much cheaper, or even for free.

This cheap sous vide setup can be applied to many dishes that don't require long amounts of cooking time such as many vegetables or most types of fish. However, you can't use this setup for most types of meat because of the constant work required to maintain the proper temperature and the fluctuations in temperature.

Food Sealing

For the cheap sous vide setup you can wrap the food in food-grade plastic wrap several layers thick, or even use a food-grade ziploc bag with all the air removed. If you already have a vacuum sealer such as a FoodSaver around then definitely use it to seal the food.

Water Bath

The cheapest way to set up a water bath is to use a pot of water on your stove. A large pot is easier to work with than a small pot since it maintains its temperature better. You can also try out the “Sous Vide Beer Cooler” trick[16].

Temperature Control

Working with a thermometer it is pretty easy to maintain a temperature within a few degrees to either side of your ideal temperature. Leaving the stove on low, or turning it on and off, and adding ice cubes or cold water in small amounts allows you to keep the water temperature relatively stable. It

won't stay within the .1 degree range that many devices can maintain but for short amounts of time it will do just fine.

I recommend using a meat thermometer with a cord, that way it's easy to keep it out of the way while you regulate the water temperature.

Cooking the Food

Once you put the food in the water, try to maintain the temperature that you are aiming for as closely as possible and you'll need to cook most dishes for 15 to 20 minutes, or up to an hour. Anything longer begins to become unmanageable.

Total Cost

About $25 for a thermometer if you don't already have one, otherwise it is basically a free method to try sous vide cooking.

This method of cheap sous vide is more time and effort intensive than other methods. However, it's a great place to experiment and see if you want to invest the few hundred dollars to move up to a basic "hands-off" set up with a sous vide controller that we recommend in the *Beginning Home Sous Vide Setup* section.

Tips and Tricks

While the majority of sous vide cooking is relatively simple, there are still many things to keep in mind that can increase your chances of success. Many of these tips also relate to all cooking methods.

For more tips and tricks you can visit our sous vide forums. There's a lot of questions answered and information exchanged there.

You can find them on our website here:
www.cookingsousvide.com/sous-vide-forums

Flavor

Always Salt and pepper

Salt and peppering your food before vacuum sealing it will only enhance the flavors of the finished meal. It's recommended for almost every dish to add salt and pepper before cooking it and as you are finishing it. Don't be afraid to taste your dishes as they come together to make sure they are properly seasoned.

Use Good Salt

Not all salts are made equal. For most recipes you should use kosher salt unless specified otherwise. Kosher salt isn't very expensive and the difference in taste and texture is very apparent. Also, stay away from the iodized salt, it will often impart a chemical flavor to your foods that can be off-putting.

Easy on the Spices

Because of the length of time sous vide cooking requires, especially for the tough cuts of meat, and the effects of the vacuum seal, spices can come across much stronger than they would in a roast or braise. It's better to err of the side of less and re-season after taking them out of the sous vide bath than to try and eat a dish that tastes like raw garlic.

Ingredients, Ingredients, Ingredients

You want to know what the secret to good cooking is? Use high-quality ingredients. The better the ingredients you use the better your resulting dish will be. This is even easier with sous vide since you will be perfectly cooking the food every time and don't have to worry about ruining it.

More and more farmers markets are opening up in cities everywhere[17] and if you are planning a nice meal the extra flavor from locally grown fruits and vegetables (and even meat) is more than worth the extra money.

Fresh is Better

Another way to improve your dishes is to be sure to use fresh ingredients. If a recipe calls for lime or orange juice, instead of using bottled juice just grab a lime and juice it for the recipe, you'll be able to taste the difference.

Turn to the Powders

Using fresh herbs and spices instead of dried is normally a good idea when cooking. However, with sous vide it can be better to use the dried powders in some cases. This is especially true for things like garlic and ginger because the raw form of both can sometimes create a bitterness in the final dish.

Give it Some Smoke

If you are preparing a BBQ-style dish it can help if you smoke the meat before sealing it. Even 30-60 minutes in the smoker can add a lot of flavor to the final dish. It's normally better to smoke the food before cooking it as opposed to afterwards.

Cheat on the Smoke

If you don't have a smoker or the time to smoke your food there is a quicker way to add some smokiness. Instead of smoking it you can add a small amount of Liquid Smoke to the bag prior to it being sealed. A smoking gun[18] can also be a very useful tool.

Don't Forget the Brine

Even though sous vide cooking traps most of the moisture and flavor in the food it never hurts to brine your chicken or pork first as it will result in even more tender and flavorful meat. For an easy brine mix 1 cup of salt, ½ cup of sugar, and 1 gallon of water, bring to a boil for 5 minutes, cool completely, then fully submerge the meat in it for 4-12 hours depending on the size of the meat. You can also add spices or herbs for additional flavor, like rosemary, thyme,

peppercorns, or bay leaves which will transfer through the brine into the meat.

Hold the Booze
Alcohol based marinades are a classic way to cook, from bourbon in BBQ sauce to red wine in braises. However, when it comes to sous vide you can run into trouble with a marinade that has alcohol in it. Because of the low temperature and the sealed bag the alcohol will not evaporate off which can lead to a dish that has a harsh alcohol flavor instead of the mellow undertones.

Tailor to Your Guests
Since sous vide dishes can be cooked in individual pouches it allows you to tailor the portions to who is eating them. For instance, if someone is allergic to pepper or spices you can do one pouch without the pepper and the other pouches with it.

You can also use two or three different seasonings in a batch of sous vide by sealing them separately. Then you can let everyone mix and match and eat the ones they prefer.

Remove the Fat
Since sous vide cooking does not get up to high temperatures (about 145°F to 150°F) it does not render fat nearly as well as other cooking techniques. When it comes to dishes cooked over a long period of time, such as short ribs or a roast, be sure to remove any extra fat from the meat before cooking it. This will result in a much leaner and more tender meat with a lot better texture.

Sealing

Don't Stuff The Pouches
In order to ensure proper cooking it's important to make sure the thickness of the food in your pouches is relatively even. Don't force in extra food or layer the food in the pouches. It's better to use multiple pouches with a single layer of food than one large pouch. Most recipes assume a single layer of food when determining the cooking time.

Airtight Ziplocs
If you are using ziploc bags to seal your food you can use this trick to force out the majority of the air. Once the bag is ready to close, seal the bag except for 1" of it. Place the bag into the water bath making sure to keep that last 1" out of the water. The water will force the remaining air out of the bag and then you can seal it completely. When done properly this is almost as good as using a weak vacuum sealer and will work great for most low-temperature sous vide cooking.

Freeze the Liquids
If you need to seal liquids in a bag and you can't seal the bag because of it one easy method is to freeze the liquids first. Then you can add them to the sous vide pouch and seal it. Once the food is in the water bath the liquid will unfreeze and work its magic. Two things to remember: 1) alcohol won't freeze and 2) if there is a large amount of liquid the seal on the bag won't be very tight because liquids are more dense than ice.

Low Temperature + Liquid = Ziplocs
If you need to seal liquid into a sous vide pouch and you are cooking it in a low temperature bath the easiest thing to do is to use ziploc bags as the pouch. Using the Airtight ziplocs tip you can get as good as a vacuum as you will be able to with a conventional vacuum sealer and avoid any potential mess.

Need Liquids? Use the Override
Many vacuum sealers have an override switch to seal the bag at it's current vacuum state. If you need to seal liquids in the sous vide pouch and you are using a high-temperature dish or you don't want to use ziplocs then you can use this to remove a lot of air from the sous vide pouches.

Fill the sous vide pouch with the food and liquid. Place it in your vacuum sealer and then hang it off of a counter, so the liquid is as far away from the sealer as possible. Be sure to support the bottom of the bag so you don't have a mess on your hands. Then begin the vacuuming process, watching the level of the liquid. As soon as the liquid nears the top of the sous vide pouch hit the "Seal" button, which should seal the pouch without pulling the liquid all the way out.

Cooking

Preheat the Water

Preheating your water is very important for dishes that are cooked for a short amount of time. The temperature of the water can fluctuate wildly during the first 30-60 minutes, especially with cheaper sous vide setups, and can adversely affect the outcome of your dish if it is only in the water that long. For sous vide dishes that are cooked for five hours or more it isn't as important but preheating never hurts.

Heavy on the Water

This is an important tip, especially for items cooked over a short period of time. Even if you preheat the water, when you put the colder food into the water bath the temperature will drop and the heating element will go into overdrive to bring it back up to temperature. The more water you are cooking in the less the temperature will drop. It can also help to let your food sit out for 15-30 minutes to come up to a higher temperature so the change in the water won't be as severe.

Turn Up the Heat

Most meat cooked sous vide should be done with very un-fatty cuts. However, if you find yourself with a more fatty cut you can turn the temperature up to about 150°F which will help break down the collagen without drying it out completely. The same cut of meat cooked at 130°F will actually be tougher because of the excess of collagen.

All Meat is Different

More and more people are purchasing meat from places other than the supermarket for a variety of reasons from better flavor and texture to healthier meat and more humane treatment. I'll save any lectures for another time but one thing is apparent, meat raised in different ways behaves differently when cooked. We've found that grass-fed beef roasts only need to be cooked for about one half the time of a comparable supermarket roast before they become tender. So be aware that meat from different places cooks differently, there's nothing worse than turning an expensive cut of meat to mush.

Separate the Skin

If you love crispy skin, whether it's for chicken, duck, or fish, it can be hard to crisp properly with sous vide. A great work around is to remove the skin before you cook the food. Then as it gets close to time to remove the food from the water bath you can put the skin in the oven on a raised sheet pan and cook it at 350°F to 400°F for 15 to 20 minutes for super-crispy skin. Just place it on top of the food when you serve it and no one will ever know you cheated.

Finishing

Drier the Better

When searing, you want your meat to be as dry as possible to speed up the searing process. The easiest way to accomplish this is to use paper towels or a dish towel to pat the meat dry. This works when cooking raw meat that has been in a marinade as well. I have specially colored dish towels that I only use for this purpose and wash after each time.

Crank the Heat

When searing foods that have already been cooking sous vide you want to minimize the amount of time they are on the grill or in the pan. If using a grill turn it as hot as it can go and

only cook the meat until a crust develops, no more than 1 or 2 minutes per side.

If you are using a hot pan, heat it until the oil just begins to smoke and then place the meat in. Once again, just leave it in until the meat begins to sear, no more than 1 or 2 minutes a side.

Preheat the Searer

Whether you are finishing your sous vide meat on a grill, on a stove, or in the oven under the broiler you should always preheat it. Putting the meat in a cold pan or grill just takes it longer to sear and cooks the meat a lot more. Using only preheated things helps keep the cooking to the outside of the meat, leaving the inside perfectly cooked.

Bring Out the Blow Torch

If you have a pastry blow torch you can use it to sear the finished meat instead of pan-frying or grilling. Be warned though, it can be hard to sear chicken with a torch without burning it.

Open the Grill Lid

Often times when cooking on the grill, especially for thicker foods, you'll close the lid to keep the heat in and more evenly cook the food. When you're searing your sous vided foods you should leave the lid open, minimizing the cooking that will happen except on the side being seared.

Simple Salsas are Great

If you are cooking a normal weekday meal then a quick and easy way to finish off sous vided meat is to just add a simple salsa to the top of it. This is especially easy in summer. Simply chop up some fresh vegetables like tomatoes, corn, avocado or squash and some herbs like basil or oregano and toss together with some olive oil and a splash of apple cider or red wine vinegar. Plate the salsa on the meat and you are all done, and the dish even looks fancy.

Time Saving

Save it for Later

Most sous vide meals can be first cooked and then quickly chilled to be reheated later. To chill most food take them directly out of the sous vide bath and place the pouch in a ice-water bath until cold.

Make and Freeze Your Own Steaks

Because of the ability of sous vide to transform tough cuts of meat into very tender "steaks" some people will cook a chuck roast with sous vide, cool it, then slice it into 1" thick slices and freeze them. When they're ready to eat they remove a slice from the freezer, defrost it, and sear on the grill or in a pan. It can be a good way to transform a cheap cut of meat into the equivalent of a much more expensive steak.

Fast Preheating

A simple way to preheat the water in your sous vide bath is to fill it ½ way full with room temperature water, then heat 3-4 cups of water in the microwave. Then you can fill the water bath the rest of the way with a mixture of the hot water and the room temperature water, watching the thermometer to make sure the temperature stays near where you need it to be.

Freezer Steaks

A lot of time sous vide cooking is thought of as upscale food when in reality it can be hugely convenient. One simple method is to buy steaks (or chicken or pork) in bulk then season, vacuum seal and freeze them. When you need a simple meal just take one or two of the steaks out of the freezer and put them directly in the water bath for a few

hours. Throw together a quick salad and you have a great meal all ready.

Take Advantage of the Time Frames

A great thing about sous vide is that it's harder to over cook your food. Take advantage of this fact when you don't know when you'll be eating. Often on weekends my wife and I do yard work and we know we want to eat afterwards but have no idea when we will finish. Throwing some steaks in the sous vide bath before we get started allows us to have great food waiting for us when we're done, whether it is in 3 hours or 6 hours. Plus, it saves on a lot of cooking time when we're beat from working all day!

A Word About Our Recipes

For each section of sous vide dish types we've included several recipes to help get you started. For all of our recipes we used either ziploc bags or a FoodSaver vacuum sealer and a SousVideMagic or PolyScience Sous Vide Professional. This means that regardless of your sous vide setup, all of the recipes in this book should be doable.

You can stay up to date with the current happenings in sous vide by reading our blog. We try to update it regularly with current information about sous vide.

You can find it at:
www.cookingsousvide.com/info/sous-vide-blog

How to Use the Recipes

Read the Recipe FIRST

This might sound like a no-brainer but with sous vide it is very important to read the whole recipe before starting. Many recipes require marinades or other initial steps and often times you need to start working on the finishing portion of the recipe while the meat is still cooking. Just read through the recipe first, make sure you understand it, and then you won't run into any surprises down the road.

Sous Vide Pouches

In the recipes we just say "Add the food to the sous vide pouches". This can be any type of sous vide pouch you feel comfortable using, from plastic wrap or ziplocs up to industrial food pouches.

It also assumes that you are using as many sous vide pouches as you need for the food to lay in one even layer, usually less than 2" thick. If spices or liquids are added to the pouches then just split them evenly between all the pouches.

Salt And Pepper

Most of the recipes call for "Salt and pepper" as an ingredient. Proper seasoning is critical to good cooking and you should salt and pepper your ingredients before they go into the pouches, when they come out, and as you are making any finishing steps.

While we'd like to give you specific measurements, how much you use is in large part a matter of taste. And since studies show this likely differs across people through genetics and upbringing, we haven't given specifics. Be sure to taste your food as you go and you should be fine.

Time and Temperatures

Our recipes just give you a single temperature and a time range for each dish. The temperatures are based on our personal preferences and are usually on the medium-rare side. If you prefer food cooked more or less you can refer to our comprehensive *Time and Temperature Charts* for the cut of meat used in that dish.

You can also apply recipes to other cuts of meat in the same way, like taking a steak recipe and using it for chicken. Just find the cut of meat you'd like to use in the *Time and Temperature Charts* and use the values given instead of the ones in the recipe.

Quantities

There are many different types of recipes in this book. Some are for sides, some are main courses and some are for complete meals. The "Serves" number we give you tries to take into account what the dish is used for. A recipe for mashed potatoes might serve 4 but we are assuming you will serve it as a side with other things and not just by itself on a plate. Read through the recipe first and you should be fine.

Experimenting

We hope you will use these recipes to get acquainted with the sous vide process and use them as a launching pad for developing your own recipes. Part of the fun of cooking is creating your own dishes and our recipes are meant to be inspirational, not followed to the letter.

Temperature

As long as you read and understand the safety section for each type of meat and stay above the lower temperature threshold you can vary the temperature you use to cook your dishes. Some people love a 135°F chicken breast and others, me included, prefer it around 141°F to 145°F. Try different temperatures and see what you like best.

Time

As long as you leave it in for the minimum amount of time needed for safety, time is probably the least important part of sous vide cooking. In general, the longer something is cooked the more tender it will be but a steak is usually good anywhere from 1 to 6 hours after being in the bath. Roasts can be cooked well in a 20 to 30 hour window. Experiment with the times that dishes are cooked for and see what works for you. And if something needs to come out sooner, after it reaches the safety time, then go ahead, it might not be quite as tender but it should still be great.

Ingredients

Ingredients are largely a matter of taste and are the easiest things to experiment with. If a recipe calls for an ingredient you don't like or don't have, feel free to omit it or add your own. Add more or less of a spice to your preferences. Prefer parsley to basil? Then go ahead and substitute.

If you use great ingredients and cook them well it's hard to go wrong.

Beef Roasts and Tough Cuts

When it comes to beef, the roasts and other tough cuts can show dramatic results in cooking. We cover the majority of cuts that you will find at your butcher

We are constantly adding recipes to our website as we continue to experiment with sous vide. Maybe something there will inspire you.

You can find them at:
www.cookingsousvide.com/info/sous-vide-recipes

Overview

Some of the most impressive results of sous vide are created with tough cuts of beef. Sous vide allows you to do things that traditional methods are unable to accomplish, such as cooking short ribs medium-rare but still tenderizing them, or creating fall-apart medium-rare roasts.

This is accomplished because cooking tough cuts of beef with sous vide allows you to break down and tenderize the meat without cooking it above medium-rare and drying it out. Once temperatures in beef go above 140°F the meat begins to dry out and become more bland. However, they also start to tenderize more quickly above this temperature which is why tough roasts and braises are done for hours at high temperatures. Using sous vide, you can hold the meat below 140°F for a long enough time for the tenderizing process to run its course.

I often use sous vide cooked beef as a basis for many normal beef dishes, such as pot roast, beef stew, goulash, chili, or corned beef. You can also use it in any of your favorite recipes, simply replace the cooking step in the recipe with the already cooked sous vide beef and then continue the rest of the recipe.

Time and Temperature Guidelines

The FDA states that beef is safe when it is held at 130°F for over 112 minutes, or 140°F for over 12 minutes. This is very easy to do with sous vide and the main reason we recommend cooking most beef cuts medium-rare since beef is most tender at that temperature[19].

Additionally, the center of "whole" muscles are sterile but due to some mechanical tenderization that some meat packagers use the muscles can be compromised so unless you trust your supplier it is advisable to cook beef to 130°F throughout.

Medium-rare beef is cooked between 130°F to 139°F, though we recommend cooking it at 131°F to give yourself a few degrees of temperature variation above the bottom of the safe zone. Feel free to experiment with any temperatures in that range. Depending on the toughness of the cut of beef, it may need to be cooked anywhere from 4 hours up to 2 or 3 days.

For each beef cut we also give directions for medium in our *Time and Temperature Charts*, these are normally cooked between 140°F and 149°F, though we recommend not going above 140°F because the beef begins drying out quickly and with sous vide there is no gain in food safety above 131°F.

Also, some beef cuts benefit from higher temperatures to help further tenderize them. These dishes will result in a more traditional look and feel from the cut of meat and we have provided these for several of the cuts. These "Well / Traditional" entries in our *Time and Temperature Charts* will be "fork tender" like a normal braise would be.

Most tough cuts of beef are cooked sous vide for between 1 and 2 days. However, for some more tender beef roasts shorter cooking times of 4 to 8 hours will be enough time to tenderize the meat fully. It is also good to keep in mind that different quality of meat cooks at different speeds, for instance most grass fed beef cooks faster and needs less time to tenderize.

General Process

The normal method of cooking tough cuts of beef with sous vide is very simple. If the meat is over 3" wide slice it into 2" strips, if you want the roast to stay whole it is possible but you will need to add some cooking time to it.

Preheat your water bath to the temperature desired, we recommend 131°F to 140°F for most cuts unless you are trying the "Well / Traditional" entry.

Take the meat and sprinkle it with salt and pepper and seal it into a sous vide pouch. You can also season the meat before sealing it with any normal seasoning such as:

- Fresh or dried thyme or rosemary
- Any spice powders such as onion, garlic, or paprika
- Chile powders like ancho, chipotle, cayenne
- Marinades, though you don't need much
- Sauces like A1 steak, worcester sauce, BBQ sauce, etc.

If adding a sauce or marinade make sure your vacuum sealer does not suck it out, you can normally seal it before all the air is out to prevent this just fine. Also, we do not recommend using fresh garlic, onions, or ginger, as they can begin to take on a bad flavor over the long cooking times.

After sealing the pouch place it into the water bath for the indicated cooking time.

Once it's fully cooked remove it from the pouch and pat dry. At this point you can sear the meat in a hot skillet to add a nice crust to it or you can slice it and serve as is. You can also apply a normal roast crust such as a garlic paste or horseradish and place it in a very hot oven until the crust sets, about 5 to 10 minutes.

Once the meat is done cooking you can use it as you would any roast or braise. You can also make a nice gravy or pan sauce from the liquid leftover in the sous vide pouch.

Recipe Notes

Most of the cuts of meat used in these recipes are completely interchangeable with each other. Just adjust the cooking time accordingly.

Times are expressed in a wide range depending on the toughness of the roast. The meat will be tasty at the lower end of the range but will get more tender as you near the top of it. Choose the time that fits your schedule and your taste.

Remember that grass-fed beef will often times tenderize much faster than store bought steaks.

Garlic-Rosemary Sirloin Roast

Time: 12 to 24 Hours
Temperature: 131°F / 55°C
Serves: 4-6

For the Sous Vide Roast
3-4 pound sirloin roast
1 tablespoon garlic powder
1 tablespoon paprika powder
¼ tablespoon ancho chile powder
2 thyme sprigs
2 rosemary sprigs

For the Crust
8 garlic cloves, peeled
4 rosemary sprigs
4 thyme sprigs
2-4 tablespoons sweet marjoram
2-4 tablespoons olive oil

One of my favorite meals is a good roast beef. However, roasts are notoriously hard to cook properly. People are split on the best method to create a good outer crust while still keeping the middle a good temperature. Even the best roasts have a wide band around them of overcooked meat. Sous vide comes to the rescue once again.

Cooking with sous vide allows you to keep the entire roast the doneness you want. For extra flavor you can apply a rub or paste to the outside of the roast and quickly sear or broil it to form a nice crust. I prefer a nice garlic, rosemary, and thyme paste but many people love a horseradish or mustard crust on their roast beef.

I used a sirloin roast for this sous vide recipe but you can use any large roast cut of beef. For some of the tougher cuts of beef you might want to increase the time spent in the sous vide.

Pre-Bath

Preheat the water bath to 131°F / 55°C.

Cover the sirloin roast with salt, pepper, the garlic, paprika and ancho chile powders and place in a pouch. Add the thyme and rosemary to the sous vide pouch and then seal. Place the sirloin roast in the water bath and cook for 12 to 24 hours.

Finishing

40 to 60 minutes before the roast is done wrap the garlic cloves in aluminum foil with some olive oil and salt and place in a 400°F oven for 30 to 45 minutes, until soft. Remove and set aside to cool.

Turn the oven to 450°F or 500°F.

Right before the sous vide roast is done make the paste for the crust. Combine all the crust ingredients in a food processor and pulse until it forms a thick paste.

Take the sous vide sirloin roast out of the water bath and remove it from the pouch. Pat it dry with a paper towel or dish cloth and place in a roasting pan. Smear the sides and top of the meat with the paste. Place the roast in the oven until the crust is done, about 5 minutes.

Remove the roast from the oven, cut it into thin slices and serve. It goes well with mashed potatoes, a side salad, or mixed vegetables.

Dry Rubbed BBQ Beef

Time: 1 to 2 Days
Temperature: 131°F / 55°C
Serves: 4 to 6

For the Beef
2-3 pounds top round roast, cut into 1 ½" slabs
1 cup BBQ sauce

For the Rub
5 tablespoons brown sugar
4 tablespoons salt
¼ cup paprika
3 tablespoons freshly ground black pepper
1 ½ tablespoons onion powder
1 ½ tablespoons garlic powder
½ teaspoon mustard powder
½ teaspoon cayenne pepper
½ teaspoon celery seeds

This sweet rub has a hint of heat and works well on most kinds of beef. It's also good on chicken and pork. Using a tough cut of beef like this for steaks helps save money, especially when cooking for a large number of people. The sous vide process will help tenderize it enough that it will taste like a higher quality steak.

Pre-Bath

Preheat the water bath to 131°F / 55°C.

Mix together all the rub ingredients in a bowl then coat the roast with it. Any extra rub can be kept in a sealed container in a cabinet for several months.

Add the roast slabs to the sous vide pouches and then seal. Place in the water bath for 1 to 2 days. For a grass-fed roast 12 to 24 hours should be good.

Finishing

Preheat a grill to very hot.

Take the beef slabs out of the water bath and remove them from the pouches. Pat them dry with a paper towel or dish cloth. Quickly sear the slabs on the grill for about 1 to 2 minutes per side. Brush both sides with the BBQ sauce and grill for 30 seconds on each side.

Take the beef off the grill, slice into strips and serve. It is great served with macaroni and cheese, coleslaw, or potato salad. It is also excellent when sliced and served on some fresh rolls with cheddar cheese and more BBQ sauce.

Sous Vide Corned Beef and Cabbage

Time: 24 to 48 Hours
Temperature: 135°F / 57°C
Serves: 4

3-4 pounds of corned beef
1 head of cabbage, cut into ½" wide strips
6 slices of bacon, cut into ¼" strips
1-2 cups fresh chicken stock
¼ cup white wine vinegar

Corned beef cooked with sous vide results in meat with a great texture. It is also much juicier and more flavorful than many corned beefs.

In this recipe we call for it to be cooked at 135°F which was the temperature we liked best. However, our test with the corned beef cooked at 146°F was also very good. It was drier than the 135°F meat but a bit more tender. Either temperature will result in fantastic corned beef.

Pre-Bath

Preheat your sous vide water bath to 135°F / 57°C.

Seal the corned beef in a sous vide pouch and place the pouch into your water bath. Let it cook for 24 to 48 hours.

Finishing

About 45 minutes before you are ready to eat begin to prepare the cabbage.

Cook the bacon strips over medium heat until crisp and the fat is rendered. Pour out all but 1-2 tablespoons of the bacon fat.

Add the cabbage strips to the bacon pan and cook over medium-high heat for about 5 minutes. Add 1 cup of the chicken stock and the ¼ cup of vinegar to the pan. Let the cabbage cook in the liquid until tender, adding more chicken stock if it begins to dry out.

When the cabbage starts to become tender, remove the corned beef from the water bath and the sous vide pouch. Slice the corned beef into ½" - ¾" slices.

Serve the corned beef on a plate with the cabbage piled on top of it. This is also wonderful when served with roasted potatoes, fresh bread, or a light salad.

Beef Goulash

Time: 12 to 24 Hours
Temperature: 131°F / 55°C
Serves: 4

2 pounds stew meat or chuck roast cut into 1" chunks
½ teaspoon garlic powder
1 large onion, diced
2 green peppers, diced
4 garlic cloves, diced
2 tablespoons paprika
1 package baby bella or button mushrooms, diced
2 14-ounce cans of diced tomatoes
1 cup beef stock
2 tablespoons flour
4 tablespoons cold water
2 tablespoons chopped fresh parsley

This sous vide beef Goulash is a great wintertime dish and is really hardy, especially when served with a good sticky rice or mashed potatoes. The beef is first cooked sous vide and only added to the goulash itself near the end, ensuring the meat is not overcooked.

We only cook the beef for 24 hours so the resulting meat isn't meltingly tender. We've found that beef chunks that are the typical sous vide tenderness do not have the chewy bite that is ideal in stews and chili and leaves the end dish lacking. The reduced cooking time leaves some of the chewiness while still tenderizing a majority of the meat.

Pre-Bath

Preheat the water bath to 131°F /55°C.

Season the meat with salt and pepper, sprinkle with the garlic powder then seal in the sous vide pouch and place in the water bath. Cook for 12 to 24 hours.

Finishing

You will start to make the goulash itself about 30 to 45 minutes before you want to eat.

Heat up some oil in a deep frying pan or pot. Add the onion and garlic and saute for several minutes, until they begin to get translucent. Add the green peppers and paprika and saute for another 2 minutes.

Remove the onions and pepper mixture from the pan and add some more oil and the mushrooms. After a few minutes the mushrooms should begin to brown and release their liquid.

Add the onion and pepper mixture back to the pan with the mushrooms and add the tomatoes and beef stock. Stir to mix and let simmer for 10-15 minutes so the flavors can meld and the sauce can thicken slightly.

Mix the cold water with the flour and add gradually to the goulash, mixing thoroughly, until it becomes the thickness you desire.

Remove the sous vide beef from the water bath and add to the goulash, along with the liquids. Add the parsley to the goulash, mix well, and then serve.

Red Wine Marinated Beef Ribs

Time: 2 to 3 Days
Temperature: 137°F / 58.3°C
Serves: 4 to 8

3 to 4 pounds of beef ribs

For the marinade
2 cups red wine
2 cups water
½ cup salt
½ cup brown sugar
1-2 tablespoons chipotle powder

This marinade helps infuse the ribs with even more moisture and flavor than they normally have. You can also play around with the spices in the marinade and see what flavors you like best. It's simple and fast to put together. These ribs go well with roasted vegetables and polenta.

Pre-Bath

Whisk together all of the marinade ingredients. Put the ribs into one or more ziploc bags and pour the marinade over top. Place in the refrigerator for 3 to 5 hours.

Preheat the water bath to 137°F / 58.3°C.

Remove the ribs from the marinade and place them into the sous vide pouches. Seal the pouches and place in the water bath. Cook for 2 to 3 days.

Finishing

Take the ribs out of the water bath and remove them from the pouches. Pat them dry with a paper towel or dish cloth. Quickly sear the ribs on the grill or pan for about 1 to 2 minutes per side, until just browned. Remove from the heat and serve.

BBQ Beef Brisket

Time: 1 to 3 Days
Temperature: 135°F / 57.2°C
Serves: 4 to 8

3-4 pound brisket
1 tablespoon liquid smoke

For the Rub
2 tablespoons ground cumin
2 tablespoons garlic powder
2 tablespoons onion powder
2 tablespoons ground coriander
1 teaspoon chipotle powder

If you enjoy smoking foods you can omit the liquid smoke and then manually smoke the brisket before you put it in the water bath. This brisket is great with any normal BBQ sides like cole slaw or potato salad. For even more flavor you can serve it with your favorite BBQ sauce. Leftovers are fantastic on nice rolls when topped with melted cheese, diced onions, and BBQ sauce.

Pre-Bath

Preheat the water bath to 135°F / 57.2°C.

Mix together all the rub ingredients in a bowl then coat the brisket with it. Any extra rub can be kept in a sealed container in a cabinet for several months.

Add the brisket to the sous vide pouch along with the liquid smoke and then seal. Place in the water bath for 1 to 3 days. For a grass-fed roast 24 to 36 hours should be good.

Finishing

Preheat a grill to very hot.

Take the brisket out of the water bath and remove it from the pouch. Pat it dry with a paper towel or dish cloth. Quickly sear the brisket on the grill for about 1 to 2 minutes per side.

Take the brisket off the grill, slice into ⅛” to ¼” strips, and serve.

Tuscan Roast Beef

Time: 3 to 6 Hours
Temperature: 131°F / 55°C
Serves: 4 to 8

3 pounds whole tenderloin or tenderloin roast

For the Rub
¼ cup fresh rosemary
¼ cup fresh parsley
3 tablespoons fresh oregano
2 tablespoons fresh sage
2 garlic cloves, coarsely chopped
2 tablespoons salt
2 tablespoons black pepper
½ cup olive oil

This recipe uses bold herbs to add a lot of flavor to the normally blander tenderloin. For another variation you can add the juices from the pouch to a cup or two of chicken or beef stock and reduce it into a gravy.

Pre-Bath
Preheat the water bath to 131°F / 55°C.

First make the Tuscan rub by putting all of the rub ingredients into a food processor and process until mixed.

Rub the roast with the Tuscan rub and place in the sous vide pouch. Seal the pouch and place in the water bath for 3 to 6 hours.

Finishing
Preheat a grill or pan to very hot.

Take the roast out of the water bath and remove it from the pouches. Pat it dry with a paper towel or dish cloth. Quickly sear the slabs on the grill or pan for 1 to 2 minutes per side.

Take the roast off the grill and serve as you would a normal roast. It is great with mashed potatoes, brussels sprouts, or green beans.

Short Ribs with Basil-Balsamic Sauce

Time: 36 to 48 Hours
Temperature: 137°F / 57°C
Serves: 4

For the Ribs
3-4 pounds of short ribs
2 teaspoons garlic powder
2 teaspoons onion powder
4 rosemary sprigs
4 thyme sprigs
Salt and pepper

For the Sauce
3 tablespoons balsamic vinegar
½ teaspoon finely minced garlic
⅓ cup fresh basil leaves
½ cup olive oil
Salt and pepper

2 tablespoons fresh basil leaves, coarsely chopped, for garnish

These short ribs have a nice tang to them from the sauce. Cooking them at the slightly higher temperature allows them to break down even more while still not over cooking. They go well with a side of mashed potatoes or roasted vegetables.

Pre-Bath

Preheat your sous vide water bath to 137°F / 57°C.

Salt and pepper the ribs and sprinkle with the garlic and onion powders. Place in a sous vide pouch and add the thyme and rosemary. Seal the pouches and place in your water bath. Let it cook for 36 to 48 hours.

Finishing

Place all the ingredients for the sauce into a blender or food processor and process until thoroughly combined.

Remove the short ribs from the sous vide pouches and pat them dry with a paper towel or dish cloth. Quickly sear the ribs on hot grill or in a hot pan for about 1 to 2 minutes per side, until just browned.

Place the ribs on individual plates, spoon the sauce over them, sprinkle with the remaining basil, and serve.

Sous Vide Pastrami Recipe

Time: 36 to 48 Hours
Temperature: 137°F / 57°C
Serves: 4

3-4 pounds short ribs, brisket, or other tough cut
4 english muffins, sliced
4 slices smoked gouda, or other smoked cheese

For the Coleslaw
½ head of cabbage, thinly sliced
4 to 8 carrots, julienned
½ cup red wine or sherry vinegar
1 shallot, diced
3 tablespoons mustard, preferably whole grained or dijon
1 ¼ cups olive oil

For the Brine
1 gallon water
1 ½ cups salt
1 cup sugar
8 teaspoons pink salt
1 tablespoon pickling spice
½ cup brown sugar
5 garlic cloves, minced
1 tablespoon coriander seeds
1 tablespoon black peppercorns

The process of making pastrami is surprisingly simple, especially considering how few people make their own. There are multiple steps in the process but each one is very easy. The brine and the idea for short rib pastrami is shamelessly adapted from Michael Ruhlman's Charcuterie[20] and his blog[21].

Once the sous vide pastrami is done cooking simply remove it from the pouches, slice and serve. You can use it however you normally like pastrami, I ate it on a toasted english muffin, topped with a mustard vinegar coleslaw, smoked gouda cheese, and mustard. I also served it with a light tomato, carrot, and cucumber salad to help cut the richness of the pastrami.

For breakfast the next day I mixed my leftovers with some diced potatoes, garlic, and poblano peppers in a pastrami hash topped with egg. The perfect leftovers breakfast!

Brining

To make the brine combine all the brine ingredients into a pot and bring to a boil. Reduce to a simmer for 5 minutes then remove from the heat and cool.

Once the brine is cool place the short rib meat in a non-reactive container large enough to hold it and cover with the brine. Place in the refrigerator for 2 to 3 days making sure the short rib meat stays submerged the entire time.

Smoking

Take your short ribs out of the brine and smoke them. There are three normal methods for adding smoke to the pastrami, use whichever method you prefer.

1) Use a smoker or grill with wood chips to smoke the short rib meat for a few hours before sous viding.

2) Grill the short rib meat quickly over on a hot grill to capture some smoke and charcoal flavor.

3) When sealing the short rib pastrami in the sous vide pouch add Liquid Smoke to it.

Once you have added the smoke to your short rib meat preheat your sous vide water bath to 137°F.

Seal the short ribs in a sous vide pouch and place the pouch into your water bath. Let it cook for 36 to 48 hours.

Finishing

About 45 minutes before you are ready to eat begin to prepare the coleslaw. Mix together the cabbage and carrots.

In a separate bowl mix together the mustard, vinegar, shallot, salt, and pepper. Slowly whisk in the olive oil until it has formed a vinaigrette. Pour on top of the cabbage and carrots and mix together.

Remove the sous vide short rib pastrami from the sous vide pouch and slice roughly.

Toast the english muffins. Add the smoked gouda to the bottom half of the english muffin and toast until the cheese has melted.

Top with the pastrami and coleslaw and enjoy!

BBQ Beef

Time: 36 to 48 Hours
Temperature: 131°F / 55°C
Serves: 4 to 8

3 pound Top Round Roast, cut into 1 ½" slabs
2-4 sprigs rosemary
⅔ cup BBQ sauce
Salt and pepper

This recipe shows a good way to take an inexpensive and tough cut of meat and turn it into tender steaks. Here we add BBQ sauce for extra flavor but you can use any seasonings you prefer.

Pre-Bath

Preheat the water bath to 131°F / 55°C.

Salt and pepper the meat then add it to the sous vide pouches. Place the rosemary sprigs and ½ of the BBQ sauce in the pouches and then seal. Place in the water bath for 36 to 48 hours. For a grass-fed roast 12 to 24 hours should be good.

Finishing

Preheat a grill to very hot.

Take the beef slabs out of the water bath and remove them from the pouches. Pat them dry with a paper towel or dish cloth. Quickly sear the slabs on the grill for 1 to 2 minutes per side. Brush both sides with the BBQ sauce and grill for 30 seconds on each side.

Take the beef off the grill and serve as you would a steak. It is great with mashed potatoes or french fries and roasted broccoli.

Beef Stew

Time: 12 to 24 Hours
Temperature: 135°F / 57.2°C
Serves: 4

For the Meat
1 ½ to 2 pounds stew meat or chuck roast cut into 1" chunks
½ teaspoon cumin powder
½ teaspoon coriander powder
1 teaspoon garlic powder
2 thyme sprigs
2 rosemary sprigs
Salt and pepper

For the Stew
2 tablespoons olive oil
1 onion, diced
5 carrots, peeled and cut into 1" pieces
12 ounces baby bella mushrooms, washed and quartered
4 fresh thyme sprigs
4 cups beef stock
¾ cup red wine
2 cups water
4 red potatoes, cut in half
½ cup fresh parsley, chopped
¼ cup fresh chives, chopped

This is a nice and hearty winter stew. It's also a great way to use up tough cuts of meat. The sous vide helps to tenderize the meat without making it so tender that it doesn't stand out in the stew.

Pre-Bath

Heat the water bath to 135°F / 57.2°C.

Mix the spices together in a small bowl. Salt and pepper the meat and then sprinkle the spices over the top. Add to sous vide pouches along with the thyme and rosemary. Seal the pouches and place in the water bath to cook for 12 to 24 hours.

Finishing

Start the stew about an hour before the meat will be done.

In a pot over medium heat add the olive oil and warm. Add the carrots and onion and cook until the onion begins to turn translucent. Add the mushrooms and cook for another few minutes. Add the thyme, stock, wine, water and potatoes and bring to a simmer. Cook uncovered about 30 minutes.

Take the beef out of the sous vide pouches and add to the stew along with the juices from the bag. Cook for another 5 minutes and then serve in individual bowls with slices of crusty bread on the side.

“Classic” Pot Roast

Time: 2 to 3 Days
Temperature: 137°F / 58.3°C
Serves: 4 to 8

For the Roast
3 pounds pot roast
3 rosemary sprigs
3 thyme sprigs
Salt and pepper

For the Gravy
1 cup beef or chicken stock
2 tablespoons flour
2 tablespoons cold water
4 tablespoons of butter, cut into slices

This recipes helps create a “classic” pot roast, just one that is incredibly tender. It is best when served with some roasted carrots and mashed potatoes.

Pre-Bath

Preheat the water bath to 137°F / 58.3°C.

Salt and pepper the roast and then place in the sous vide pouch. Add the herbs and seal the pouch. Place in the water bath for 2 to 3 days.

Finishing

Preheat a grill or pan to very hot.

Take the roast out of the water bath and remove it from the pouch, reserving the liquid. Pat it dry with a paper towel or dish cloth.

Place the reserved liquid into a pan with the stock and bring to a boil. Mix together the flour and cold water in a bowl and then whisk into the pan. Bring to a boil and then reduce the heat to medium-low.

Quickly sear the slabs on the grill or pan for 1 to 2 minutes per side.

While the meat is cooking stir the butter into the gravy a tablespoon at a time.

Take the roast off the grill, slice it and serve with the gravy on top or in a bowl on the side.

Available in The Full Book

If you have enjoyed this section of the PDF download we encourage you to purchase our full book. It is available as a PDF download or as a paperback cookbook. In addition to this "Beef Roats and Tough Cuts Section" there are also section with recipes for steak, chicken, duck, lamb, fruits and vegetables, pork, turkey, and fish and shellfish.

Time and Temperature Charts

One of the most interesting aspects of sous vide cooking is how much the time and temperature used can change the texture of the food. Many people experiment with different cooking times and temperatures to tweak dishes various ways.

The numbers below are merely beginning recommendations and are a good place to start. Feel free to increase or lower the temperature several degrees or play around with the cooking time as you see fit as long as you stay in the safe-zone discussed in each chapter.

You can also get this time and temperature information
on your mobile phone if you have an iPhone, iPad or an Android.

Just search for “Sous Vide” and look
for the guide by “Primolicious” or go here:
http://itunes.apple.com/us/app/sous-vide/id388460050?mt=8

Beef - Roasts and Tough Cuts

Bottom Round Roast

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Brisket

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Cheek

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	149ºF for 2 to 3 Days (65.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Chuck Roast

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Pot Roast

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Prime Rib Roast

Medium Rare	131ºF for 5 to 10 Hours (55ºC)
Medium	140ºF for 5 to 10 Hours (60ºC)

Rib Eye Roast

Medium Rare	131ºF for 5 to 10 Hours (55ºC)
Medium	140ºF for 5 to 10 Hours (60ºC)

Ribs

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Shank

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Short Ribs

Medium Rare	131ºF for 2 to 3 Days (55.0ºC)
Medium	140ºF for 2 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Sirloin Roast

Medium Rare	131ºF for 5 to 10 Hours (55.0ºC)
Medium	140ºF for 5 to 10 Hours (60.0ºC)

Stew Meat

Medium Rare	131ºF for 4 to 8 Hours (55.0ºC)
Medium	140ºF for 4 to 8 Hours (60.0ºC)

Sweetbreads

Medium	140ºF for 30 to 45 Min (60ºC)
Pre-Roasting	152ºF for 60 Min (66.7ºC)

Tenderloin Roast

Medium Rare	131ºF for 3 to 6 Hours (55.0ºC)
Medium	140ºF for 3 to 6 Hours (60.0ºC)

Tongue

Low and Slow	140ºF for 48 Hours (60.0ºC)
High and Fast	158ºF for 24 Hours (70.0ºC)

Top Loin Strip Roast

Medium Rare	131ºF for 4 to 8 Hours (55.0ºC)
Medium	140ºF for 4 to 8 Hours (60.0ºC)

Top Round Roast

Medium Rare	131ºF for 1 to 3 Days (55.0ºC)
Medium	140ºF for 1 to 3 Days (60.0ºC)
Well-Traditional	160ºF for 1 to 2 Days (71.1ºC)

Tri-Tip Roast

Medium Rare	131ºF for 5 to 10 Hours (55ºC)
Medium	140ºF for 5 to 10 Hours (60ºC)

Available in The Full Book

If you find these time and temperatures helpful then we encourage you to purchase our full book. It is available as a PDF download or as a paperback cookbook. In addition to this "Beef Roats and Tough Cuts" Time and Temperature chart there are also charts with for steak, chicken, duck, lamb, fruits and vegetables, pork, turkey, and fish and shellfish.

Fahrenheit to Celsius Conversion

All temperatures in this guide are given in Fahrenheit, however some sous vide equipment only works in Celsius. To convert from Fahrenheit to Celsius take the temperature, then subtract 32 from it and multiply the result by 5/9:

(Fahrenheit - 32) * 5/9 = Celsius

We've listed out the temperatures from 37°C to 87°C which are the most commonly used range in sous vide.

Celsius	Fahrenheit
37	98.6
38	100.4
39	102.2
40	104.0
41	105.8
42	107.6
43	109.4
44	111.2
45	113.0
46	114.8
47	116.6
48	118.4
49	120.2
50	122.0
51	123.8
52	125.6
53	127.4
54	129.2
55	131.0
56	132.8
57	134.6
58	136.4
59	138.2
60	140.0
61	141.8
62	143.6
63	145.4
64	147.2
65	149.0
66	150.8
67	152.6
68	154.4
69	156.2
70	158.0
71	159.8
72	161.6
73	163.4
74	165.2
75	167.0
76	168.8
77	170.6
78	172.4
79	174.2
80	176.0
81	177.8
82	179.6
83	181.4
84	183.2
85	185.0
86	186.8
87	188.6
88	190.4
89	192.2

Sous Vide Resources

Sous vide is a very complex process and there is much more to learn about it besides what has been covered in this book. There is more and more good information available about sous vide cooking. Here are some resources to help you continue to learn more.

For an up to date look at current books, websites, and other sous vide resources you can visit the list we keep on our website.

You can find it at:
www.cookingsousvide.com/info/sous-vide-resources

Books

Beginning Sous Vide

By Jason Logsdon

This PDF also comes in a 210 page full version that is available as a paperback cookbook from Amazon.com or as a PDF download. In addition to the first 6 chapters that are included in this PDF we include another 150 pages of content with recipes and time and temperature combinations for beef, pork, fish, vegetables, chicken, duck, lamb, and turkey.

It has a total of more than 100 sous vide recipes and over 400 time and temperature combinations for 175 cuts of meat and types of fish and vegetables.

Under Pressure

By Thomas Keller

This book shows you the extent of what is possible through sous vide cooking. The recipes aren't easy, and they require a lot of work but they can provide great inspiration for dishes of your own. If you are interested in expanding your concept of what can be accomplished through cooking then this is a must have.

Cooking for Geeks

By Jeff Potter

If you are interested in the Geekier aspects of cooking then this book does a great job. It takes you through the basics of setting up your kitchen all the way up to kitchen hacks and sous vide cooking.

Sous Vide Holiday Cookbook

By MD Mary Dan Eades

A nice short sous vide book with about 2 dozen holiday recipes, the majority of which are done with sous vide.

On Food and Cooking

By Harold McGee

This is the ultimate guide to the scientific aspects of cooking. If you like to know why things happen in the kitchen, at every level, you'll find this book fascinating.

Cooking Sous Vide: A Guide for the Home Cook

By Jason Logsdon

My first book and the first book written exclusively for the home cook learning sous vide. Most of the information from it has been updated and adapted for inclusion in this book.

Sous-Vide Cuisine

By Joan Roca

From the authors: “we propose our book, as a progression that involves three concepts of sous-vide: Storage, Cooking and Cuisine.” Be sure to get a copy that is in English, as many copies are not.

Modernist Cuisine: The Art and Science of Cooking

By Nathan Myhrvold

This isn’t out at the time of publishing but it aims to be the bible of modernist cuisine. It’s over 2,400 pages costs $500 and was several years in the making. If you are serious about learning the newly developing modernist techniques then this might be worth the investment.

Sous Vide for the Home Cook

By Douglas Baldwin

Baldwin helped to define and codify home sous vide cooking with his free online guide. His book is a nice intro to the subject, including food safety, and has many simple recipes to follow.

Sous Vide: Cooking in a Vacuum

By Viktor Stampfer

A collection of some of Viktor’s best sous vide recipes. Be sure to get a copy that is in English, as many copies are not.

Modern Gastronomy: A to Z

By Ferran Adria

From the Author: "A dictionary of present-day cooking, Modern Gastronomy: A to Z puts equal emphasis on the nature of ingredients, their reactions, and the processes they undergo to create the final product. You can quickly look up and find, in plain language, everything you need to know about the science of cooking and the art of combining flavors and textures."

Websites

Cooking Sous Vide

http://www.cookingsousvide.com

This is the main website where I contribute sous vide articles. We update it regularly with original recipes and news from around the sous vide community. There are also community features such as forums and question and answer pages.

SVKitchen

http://www.svkitchen.com

A very nice site on sous vide cooking. They touch on everything from standard sous vide swordfish to making your own preserved lemons with sous vide. The recipes for *Garlic Confit* and *Vanilla Poached Pears* are from their site.

Sous Vide: Recipes, Techniques & Equipment

http://forums.egullet.org/index.php?showtopic=116617&st=0

A very long forum string from eGullet, about 98 pages long at this time that covers almost everything you need to know about sous vide if you have the time to look through it all. I suggest starting near the end and working towards the front.

Apps

We have an iPhone and iPad app available, as well as one coming shortly for the Android. You can search in the app store for "Sous Vide" and ours should be near the top, published by "Primolicious" or view it here.

PolyScience is also releasing an app in conjunction with us that should be in the app store by the end of the year.

Papers and Research

USDA Guide

http://www.fsis.usda.gov/OPPDE/rdad/FSISNotices/RTE_Poultry_Tables.pdf

The US government guide to poultry and beef cooking times.

Practical Guide to Sous Vide

http://amath.colorado.edu/~baldwind/sous-vide.html

Written by Douglas Baldwin, this is one of the best guides available for the scientific principles behind sous vide cooking and a pioneering work in home sous vide cooking.

Sous Vide Safety

http://www.seriouseats.com/2010/04/sous-vide-basics-low-temperature-chicken.html

A nice look at the basics of low temperature cooking, specifically as it applies to chicken.

Acknowledgments

Sous vide is a relatively new field for the home cook and the effort of several people has been instrumental in moving it forward. Nathan Myhrvold helped to almost single-handedly push sous vide cooking to home cooks through his research and contributions to the eGullet thread as well as his interviews in the mainstream press. Douglas Baldwin wrote his incomparable guide to the science behind sous vide and the research he's done around it. Several manufacturers have been developing sous vide products specifically for the home chef and trying to educate people about the benefits of using sous vide cooking at home. There are also many home cooks out there contributing to the sous vide community through their personal blogs sharing recipes, successes and failures in sous vide. Also, the professional chefs who have been using and perfecting this technique for the last three decades including Thomas Keller, Viktor Stampfer, and Joan Roca.

This book would not have been possible without all of their hard work and the information they have made available to the community.

And finally, thanks to my parents and my wife for encouraging me in everything I do. I would never have been able to do any of this without their support.

About the Author

Jason Logsdon is an avid cook and web developer. He is a co-founder of and main contributor to CookingSousVide.com. He can be reached at jason@cookingsousvide.com.

Available in The Full Book

Thanks for reading our PDF!

This PDF contained the first 6 chapters from *Beginning Sous Vide: Low Temperature Recipes and Techniques for Getting Started at Home*. It also included the full Resources section and the entire "Beef Roasts and Tough Cuts" section and it's corresponding Time and Temperature Chart.

Please pass this guide on to anyone you know that might benefit from reading it.

The full book is available as a paperback cookbook from Amazon.com or as a PDF download. In addition to the first 6 chapters that are included in this PDF we include another 150 pages of content.

The additional content has recipes for beef, pork, fish, vegetables, chicken, duck, lamb, and turkey. **This brings the total recipe count over 100 sous vide recipes.**

It also has time and temperature combinations for each of those subjects.
That's over 400 combinations for 175 cuts of meat and types of fish and vegetables.

If you enjoy this PDF and want more information we hope you'll check out the full version of it.

Thanks, and happy sous viding!
Jason Logsdon
www.CookingSousVide.com

Disclaimer

Some of the links in this book are affiliate links or are to companies or websites I have had professional dealings with. Please don't purchase anything based on my input alone.

End Notes

[1] For more information about heat and it's effects on meat I suggest *On Food and Cooking* by Harold McGee, it has about all the food science information you could ever want.

[2] You can find the USDA guide here:
http://www.fsis.usda.gov/OPPDE/rdad/FSISNotices/RTE_Poultry_Tables.pdf

[3] *A Practical Guide to Sous Vide* was one of the pioneering works on sous vide and can be found here:
http://amath.colorado.edu/~baldwind/sous-vide.html

[4] Serious Eats has a very good look at the safety of chicken in regards to temperature here:
http://www.seriouseats.com/2010/04/sous-vide-basics-low-temperature-chicken.html

[5] This is also the finding of the French Culinary Institute and expressed in their Sous Vide Primer:
http://www.cookingissues.com/2010/04/07/sous-vide-and-low-temp-primer-part-ii-cooking-without-a-vacuum/

[6] I personally use a FoodSaver and have had pretty good success with it though I also use Ziplocs very often when I'm in a rush or don't feel like pulling out the FoodSaver. Some models of the FoodSaver work better than others and I recommend doing some research on Amazon and reading the ratings and reviews there.

[7] I have worked professionally with PolyScience and use one of their circulators at home that they have loaned to me. It's worth looking at other options if you feel my opinion has been compromised.

[8] The Seattle Food Geek has many great articles if you are interested in the more nerdy and science-y side of cooking.
http://seattlefoodgeek.com/2010/02/diy-sous-vide-heating-immersion-circulator-for-about-75

[9] Again, I've worked with PolyScience before, feel free to look at other brands if you feel I am biased.

[10] I've also used a demo version of the Sous Vide Supreme that they loaned to me. It was very good and cooked most dishes adequately. They also have very good customer service.

[11] I regularly used a SousVideMagic controller with an old crock pot until PolyScience loaned me their circulator. The SousVideMagic worked very well, especially for the price. They also have great customer service.

[12] You can read the article and the following discussion here:
http://www.seriouseats.com/2010/04/cook-your-meat-in-a-beer-cooler-the-worlds-best-sous-vide-hack.html

[13] Looking up the FoodSavers on Amazon and reading the reviews can be a great way to get a feel for how the different models respond.

[14] Once again, I've worked with PolyScience before so feel free to look at other brands if you feel my opinion has been compromised.

[15] Again, I've also used a demo version of the Sous Vide Supreme that they loaned to me.

[16] Here's the link to that article again:
http://www.seriouseats.com/2010/04/cook-your-meat-in-a-beer-cooler-the-worlds-best-sous-vide-hack.html

[17] To find farmers markets in your area you can check out the following links:
http://www.localharvest.org/
http://apps.ams.usda.gov/FarmersMarkets/
http://www.ams.usda.gov/AMSv1.0/FARMERSMARKETS

[18] The one I use was loaned out to me from PolyScience, you can find it here:
http://www.cuisinetechnology.com/the-smoking-gun.php

[19] Serious Eats did some studies that show that people in a blind taste test prefer medium-rare steak, even if they state they usually prefer rare or medium steaks.
http://www.seriouseats.com/2010/03/how-to-sous-vide-steak.html

[20] If you are at all interested in smoking, curing, sausage making, or any of the other forms of charcuterie then Michael Ruhlman's Charcuterie is a must have book. It makes the process simple and approachable. You can find it at Amazon here:
http://www.amazon.com/Charcuterie-Craft-Salting-Smoking-Curing/dp/0393058298/

[21] Michael Ruhlman's blog is one of the only "must read" food blogs I have. You can find it here:
http://ruhlman.com/