

MOLECULAR GASTRONOMY

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5. SOUS VIDE TECHNIQUE

- IS A TECHNIQUE IN WHICH VACUUM-SEALED FOOD IS SLOW-COOKED IN A WATER BATH THAT IS SET TO A CERTAIN TEMPERATURE. PREPARE MANY DIFFERENT TYPES OF FOODS, FROM STEAK TO FRUIT.
- SOUS VIDE FRENCH LANGUAGE MEANS UNDER VACUUM IN ENGLISH
- **DR. BRUNO GOUSSAULT IS RECOGNIZED AS THE FOUNDER OF MODERN SOUS VIDE. IN 1971***SOUSVIDEMAGAZINE.COM

5. SOUS VIDE TECHNIQUE

History of Sous Vide



400-1500

THE START OF
SEALED COOKING

Sealed-cooking practices appear in the Middle Ages, when preparing food within animal organs—including bladders, stomachs, and intestines—was common in present-day Scotland and Russia.

1438-1533

INCAN
UNDERGROUND



Move over, New England clambakes: the traditional Peruvian dish Pachamanca—meat, vegetables, and spices baked underground—first appeared in the Incan Empire.



1799

EARLY EFFORTS
IN SOUS VIDE

Sir Ben Thompson, an American-born British physicist, documents an early effort in low-temperature cooking, with air as the heat transfer method.

1960s

SOUS VIDE AS
PRESERVATIVE



In the 1960s, French and American engineers experimented with food-grade plastic and vacuum packing, developing it as an industrial food preservation method.



1971

REFINING
THE METHOD

Scientist and engineer Dr. Bruno Goussault pioneers and perfects the sous vide method, developing scientific rationale, safety practices, and other refinements to aid precision.

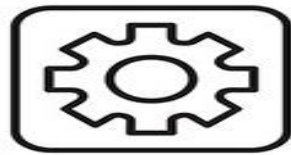
2009

SOUS VIDE
HITS HOME



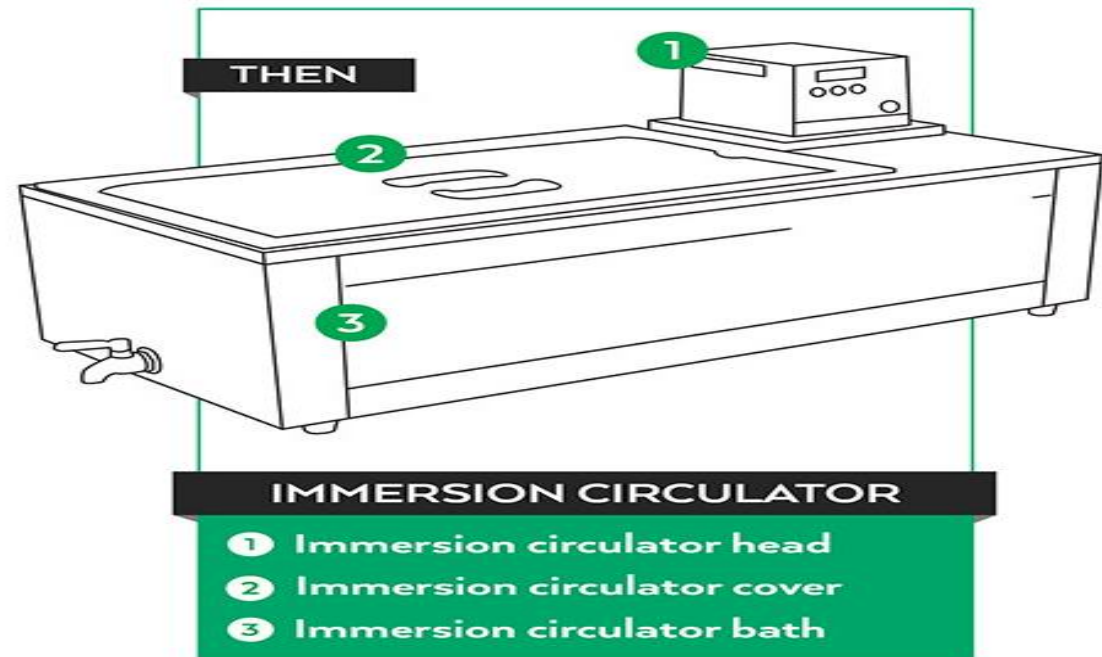
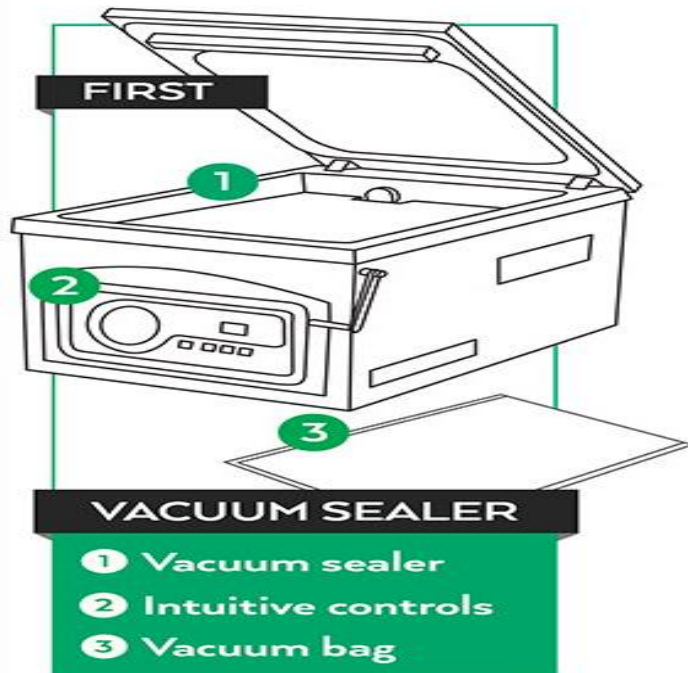
Dr. Michael and Mary Eades introduce the first household sous vide cooking appliance, the SousVide Supreme, delighting food science early adopters.

ESSENTIAL EQUIPMENT OR UTENSIL



SOUS VIDE

EQUIPMENT



AFFORDABLE SOUS-VIDE MACHINE



5. SOUS VIDE TECHNIQUE



SOUS VIDE

BENEFITS



SET IT AND
FORGET IT

Simply vacuum pack, place in water, set the temperature, and walk away.



ENERGY
EFFICIENT

More energy-efficient than traditional ovens, stovetops, or grills.



OVERCOOKING
IS VIRTUALLY
IMPOSSIBLE

Foods cannot cook at a higher degree than the water's set temperature.



BETTER TASTE

Your food will marinate in its own juices for enhanced flavor.



REDUCES
PREP TIME

Prepare foods beforehand and quickly heat before serving.



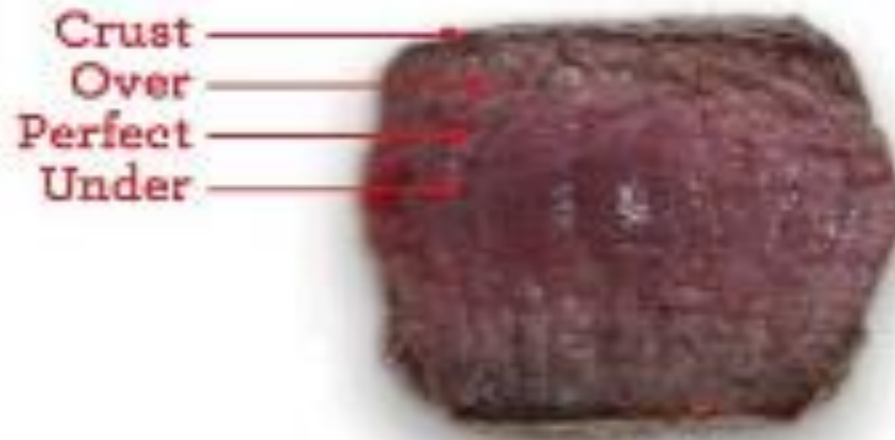
REDUCES RISK OF
CONTAMINATION

The high water temperature and long cooking time pasteurizes your food.

5. SOUS VIDE TECHNIQUE

BEEF COMPARISON

Traditional Cooking vs. Sous Vide Cooking



Crust
Over
Perfect
Under

Different Levels Of Doneness



Crust
Perfect

Perfect Doneness Throughout

SAFETY & HYGIENE ON SOUS-VIDE

- **COOK AT FOOD-SAFE TEMPERATURES.** TO MAKE SURE VEGETATIVE FORMS OF PATHOGENIC BACTERIA WILL BE DESTROYED, ALWAYS SOUS VIDE FOOD AT A TEMPERATURE OF 132.8°F (56°C) OR HIGHER.
- **DOUBLE CHECK YOUR CIRCULATOR.** TO ENSURE YOUR CIRCULATOR'S TEMPERATURE IS ACCURATE, VERIFY YOUR WATER BATH WITH A THERMOMETER BEFORE COOKING.
- **USE THE RIGHT KIND OF PLASTIC BAGS.** SCIENTISTS AND CHEFS BELIEVE COOKING IN FOOD-SAFE, BPA-FREE PLASTIC AT LOW SOUS VIDE TEMPERATURES DOESN'T POSE ANY HEALTH RISK. SO, AS A RULE, ONLY USE FOOD-GRADE BAGS THAT CAN WITHSTAND COOKING AND STORAGE AT COLD TEMPERATURES. IF YOU DO CHOOSE ZIPLOC (OR ANOTHER BRAND-NAME SLIDER BAG) FOR SOUS VIDE COOKING, GO FOR THE THICKER VARIETY AND DON'T COOK AT BOILING TEMPERATURES.

SAFETY & HYGIENE ON SOUS-VIDE

- **DON'T REUSE PLASTIC BAGS.** EXPERTS ADVISE AGAINST REUSING ZIPLOC OR ANY OTHER PLASTIC BAGS. REUSING PLASTIC AT HIGHER TEMPERATURES AND FOR LONGER COOKING TIMES ISN'T SAFE BECAUSE THE PLASTIC CAN BE COMPROMISED. IF REUSING BAGS IS A PRIORITY FOR YOU (OR YOU DON'T WANT TO COOK IN PLASTIC), CONSIDER REUSABLE [SILICONE BAGS](#), WHICH ARE EASILY CLEANED IN THE DISHWASHER.
- **DON'T VACUUM PACK ROOM-TEMPERATURE FOOD.** VACUUM PACKING AT ROOM TEMPERATURE DISRUPTS THE CELL WALL OF A FOOD'S DELICATE PROTEINS AND GIVES FOOD AN UNWELCOME COTTONY TEXTURE. ONLY VACUUM SEAL FOOD THAT'S IN A CHILLED STATE.
- **BE SMART ABOUT STORAGE.** UNLESS YOU'RE PLANNING TO PLATE RIGHT AFTER COOKING, IMMEDIATELY CHILL YOUR FOOD TO PREVENT SPORE-GENERATING BACTERIA FROM FORMING IN YOUR VACUUM-SEALED BAG. PLACE YOUR COOKED, BAGGED FOOD IN AN ICE WATER BATH TO BRING THE FOOD TEMPERATURE BELOW 41°F (5°C), AND AFTER THE ICE BATH, REFRIGERATE YOUR BAG BELOW 41°F. COOKED FOOD CAN BE REFRIGERATED FOR A MAXIMUM OF SEVEN DAYS—OR UP TO SEVERAL MONTHS IN THE FREEZER—BEFORE REHEATING AND EATING.

5. SOUS VIDE TECHNIQUE



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TEMPERATURE REFERENCE TABLE

	FOOD	COOKING TEMP	TIME	THICKNESS
BEEF	Tenderloin	138°F / 59°C	60 Mins.	3in. / 7.6cm.
	Rib Eye Steak	138°F / 59°C	60-120 Mins.	1in. / 2.5cm.
	Strip Steak	138°F / 59°C	60-120 Mins.	1in. / 2.5cm.
	Porterhouse Steak	138°F / 59°C	60-120 Mins.	1in. / 2.5cm.
	Brisket	147°F / 64°C	48 Hrs.	
	Veal Shank	167°F / 75°C	12-24 Hrs.	1.5in / 3.8cm.
LAMB	Lamb Saddle	141°F / 60.5°C	90 Mins.	1.5in / 3.8cm.
PORK	Pork Belly	180°F / 82°C	24-48 Hrs.	
	Ribs	138°F / 59°C	24-48 Hrs.	1in. / 2.5cm.
POULTRY	Chicken Breast	147°F / 64°C	60 Mins.	2in. / 5cm.
	Duck Breast	147°F / 64°C	60 Mins.	2in. / 5cm.
	Chicken Thighs	152°F / 66.6°C	90 Mins.	2in. / 5cm.
	Foie Gras	134°F / 56°C	35-55 Mins.	2in. / 5cm.
FISH	Salmon Filet	125°F / 52°C	20 Mins.	1in. / 2.5cm.
	Cod Filet	140°F / 60°C	20 Mins.	1in. / 2.5cm.
	Halibut	140°F / 60°C	20 Mins.	1in. / 2.5cm.
SHELLFISH	Shrimp	149°F / 65°C	15-20 Mins.	1in. / 2.5cm.
	Lobster	145°F / 63°C	15-35 Mins.	1in. / 2.5cm.
	Scallops	140°F / 60°C	15-35 Mins.	1in. / 2.5cm.
VEGETABLES	Root - Whole (Beets, Carrots, Potatoes, etc.)	185°F / 85°C	45-90 Mins.	2in. / 5cm.
	Root - Cut (Beets, Carrots, Potatoes, etc.)	185°F / 85°C	20-30 Mins.	1in. / 2.5cm.
	Bulb - Whole (Onions, Shallots etc.)	185°F / 85°C	90 Mins.	2in. / 5cm.
	Squash - Cut	185°F / 85°C	30 Mins.	1in. / 2.5cm.
	Artichoke Hearts	185°F / 85°C	45-75 Mins.	1.5in. / 3.8cm.
FRUITS	Peach Wedges	185°F / 85°C	15-20 Mins.	1.5in. / 3.8cm.
	Pear Wedges	181°F / 83°C	25-45 Mins.	1.5in. / 3.8cm.
	Apple Slices	185°F / 85°C	45-90 Mins.	1in. / 2.5cm.
EGGS IN SHELL	Soft Poached Egg	145°F / 62.7°C	60 Mins.	Large Size
CUSTARDS	Crème Anglaise	179.6°F / 82°C	20 Mins.	

This table is only meant to serve as a guideline. Temperatures should be adjusted to your preference of doneness. Cooking time should be adjusted to initial temperature, heat transfer characteristics, and thickness of the food being cooked.

6. DECONSTRUCTION TECHNIQUE

- THIS TECHNIQUE INVOLVES BREAKING DOWN THE ELEMENTS OF A DISH AND REBUILDING THE PRESENTATION. USUALLY, A DECONSTRUCTED DISH CONSISTS OF MULTIPLE COMPONENTS OF A DISH THAT ARE PRESENTED TOGETHER.
- THIS TECHNIQUE INTRODUCED BY CHEF FERRAN ADRIA OF *EL BULLI* RESTAURANT FROM SPAIN
- “*THE ADAPTATIONS HAVE TO START FROM WELL KNOWN DISHES OR RECIPES, BECAUSE IF DINERS ARE NOT FAMILIAR WITH THE ORIGINAL, IT IS IMPOSSIBLE FOR THEM TO HAVE AN APPRECIATION OF THE DISHES CREATED WITH THIS TECHNIQUE.*”

DECONSTRUCTION



DECONSTRUCTION



DECONSTRUCTION VIDEO



WHAT IS YOUR DECONSTRUCTION IDEA??