

Sous Vide



“Sous Vide”: The Other Cooking Method

Presented to:

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Advantages **Sous Vide**



- Preserves Foods integrity
- Complete Control over Product
- Decreases Service Time
- Allow Cooks to Focus
- Better Inventory Control
- Extends Shelf Life
- Eliminates Over Production
- Reduces Aerobic Bacteria Growth

Introduction/Outline

Sous Vide



- Why and What?
- Brief History and Philosophy
- Tools / Equipment Needed
- Sous Vide Applications
- Safety / Food Handling Protocols
- Basic Preparation / Packaging

Quote
Sous Vide



“In cooking success is not extemporized. It’s built on precision, the quest for truth, and the purity of flavors and textures.”

-Bruno Goussalt

Embrace change and technology with the power of precise cooking temperatures.

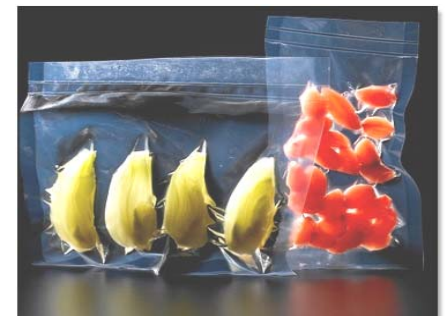
Defined Sous Vide



“Sous Vide” – Under Vacuum

A method of cooking that is intended to deliver a consistent temperature and time outcome of thermal heat transfer to food items.

Like: Roasting, Grilling, Broiling, Sautéing, Braising, Poaching, etc.



History Sous Vide



Developed in the mid 1970's by

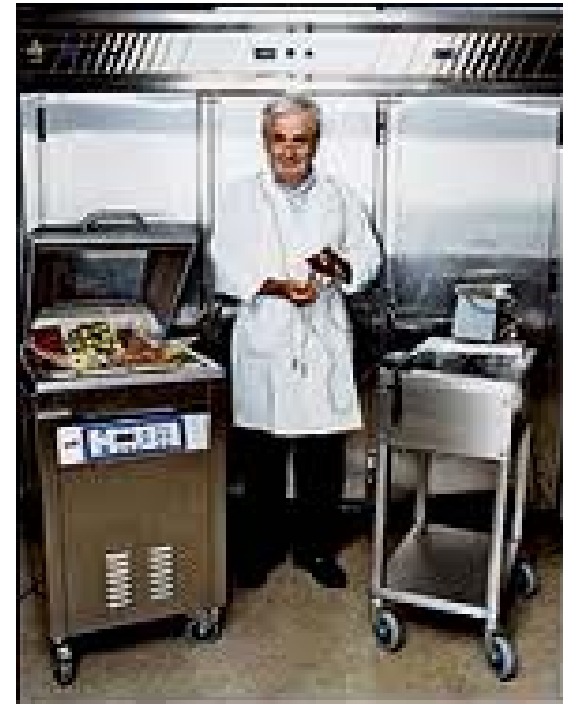
George Pralus

– specifically for the cooking
of Foie Gras; Restaurant Trogrois

*The Science of Sous Vide –
Bruno Goussault*

Contemporary Practitioners:

*T Keller, P Bocuse, H
Blumenthal, C Trotter, JG
Vongerichten, C Young Modernist
Cuisine others*



Equipment Sous Vide

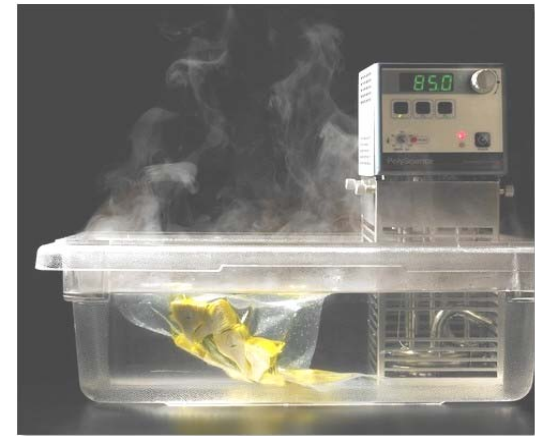


The Tools:

- Chamber Vacuum Sealer or external type
- Thermal circulator
- Digital timer & thermometer

Supplies:

- Boilable Food Grade Vac-Pac Bags
- Closed Cell Foam Tap
- Gloves
- Paper Towels



Applications

Sous Vide



1. Cook/Chill: cook food – rapid chill – freeze or refrigerate

(hot fill → seal → chill)

-Advantages/Usage

2. Partially Cook: chill – hold – freeze – water bath or thermal cook

3. Contemporary Methods:

- Season/marinate – bag/seal – chill/hold
- Cook precise time / temperature
- Achieve core temperature → Serve

(Cool, Hold & Re-therm)

Safety **Sous Vide**



The Goal:

Maximize flavor / taste while minimizing risk of food pathogens.

- ⇒ Pathogenic micro-organisms can be controlled through formulation, time and temperature.
- ⇒ How – using functional ingredients to lower the pH of a finished product below 4.5 (low acid foods).
 - ⇒ Salt, spices, other natural acidulents, modified food ingredients and/or preservatives.
- ⇒ Sous Vide relies heavily on time and temperature controls.

Safety Sous Vide



Acidifying Agents

- Oils
- Citrus
- Vinegars
- Alcohol
- Buttermilk

Alkalizing Spices & Seasonings

- Cinnamon
- Curry
- Ginger
- Mustard
- Chili Pepper
- Sea Salt
- Miso
- Tamari
- All herbs

Myth of "TDZ" 40° - 140°F

Sous Vide



- Food pathogens can multiply @ temperatures of 29.3°F and 127.5°F
- Food spoilage bacteria begin to multiply @ 23°F.
- Contrary to popular belief, most food pathogens and toxins cannot be seen, smelled or tasted.
- Sous Vide prepared foods are divided into 3 categories:
 1. **Raw or un-pasteurized**
 2. **Pasteurized – to heat treat the food to reduce the number of vegetative pathogens to a safe level. Vegetative pathogens are simply growing and multiplying.**
 3. **Sterilized – Heat treating food to reduce both the vegetative micro-organisms and the spores to a safe level. (sterilization)**
- Sous Vide processing is used in the food industry to extend the shelf life of food products.

Myth of "TDZ" 40° - 140°F

Sous Vide



- *Pasteurized foods must either be eaten immediately or rapidly chilled and refrigerated to prevent the outgrowth and multiplication of spores.*
- *The center of the food should reach 130°F within 6 hours to prevent the toxin producing pathogen *Clostridium perfringens* from multiplying to dangerous levels*

Myth of "TDZ" 40° - 140°F

Sous Vide



- *Aerobic bacteria that thrives in oxygen rich environments while anaerobic bacteria thrives in environments omitting oxygen like ROP.*
- *The TDZ was created because it is the optimum temperature for aerobic growth to occur. The thought is that, by reducing the amount of time a product spends in the TDZ the amount of growth is minimized to safe levels.*
- *The time and temperature relationship that minimizes growth within the TDZ for aerobic bacteria is similar to anaerobic bacteria control.*

Myth of "TDZ" 40° - 140°F

Sous Vide

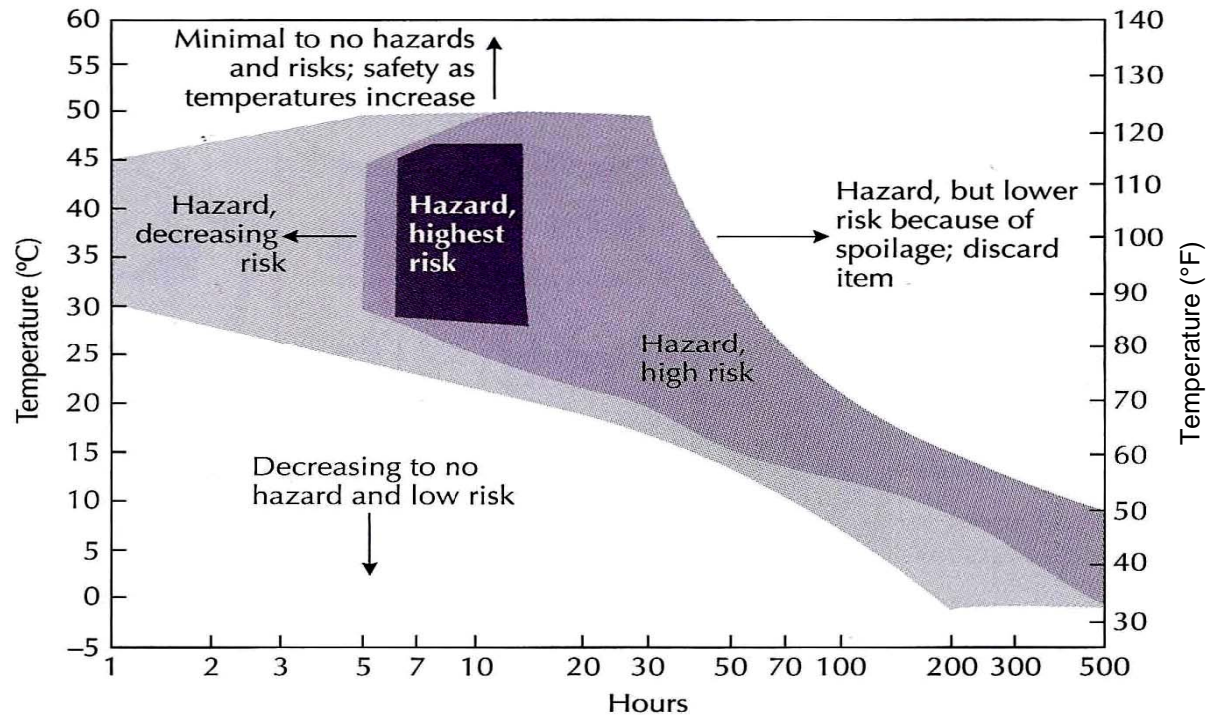


- *Instead of having a set zone to avoid, cooking time and temperature are based on a ratio to remove or kill 90% of anaerobic bacteria in a product.*
- *The concept is a formula that increases time by a factor specific to the bacteria, based on influencing factors, as the temperature decreases by a factor of 10.*

So every 10°F decrease in cooking temperature will cause the amount of cooking time required to increase by the factor
- *This ratio is the reason why a sous vide product can be cooked to a lower temperature for a longer amount of time and still be safe.*

Myth of "TDZ" 40° - 140°F

Sous Vide



Relationship between time and temperature allows an evaluation of hazard and risk to take place.

A La Carte Preparation **Sous Vide**



- Use only fresh food materials
- Prepare sous vide in a dedicated area with high level sanitation practices (protocols)
- Maintain temperatures of food when sealed in the bag – 38°F
- Prepare a HACCP plan for each Sous Vide prepared item
- Write up all protocols and keep a log
- Approach it differently not conventionally, focus on each kill step time and temperature.

A La Carte Preparation **Sous Vide**



Safety applies every step of the way

Sealing Preparation for Packaging:

- ⇒ *Chill food, sear, then chill food immediately if called for before putting in the bag.*
- ⇒ *Seal the chilled food and cook immediately or store immediately at 38°F or below.*

Cooking:

- ⇒ *Cook, remove and serve*
- ⇒ *Cook, leave in bag, chill in ice bath and store under refrigeration or freeze*

Storing:

- ⇒ *Store food (chilled if it was cooked first) at or below 38°F.*
- ⇒ *Defrost food under refrigeration before using.*

Seasoning - Flavoring **Sous Vide**



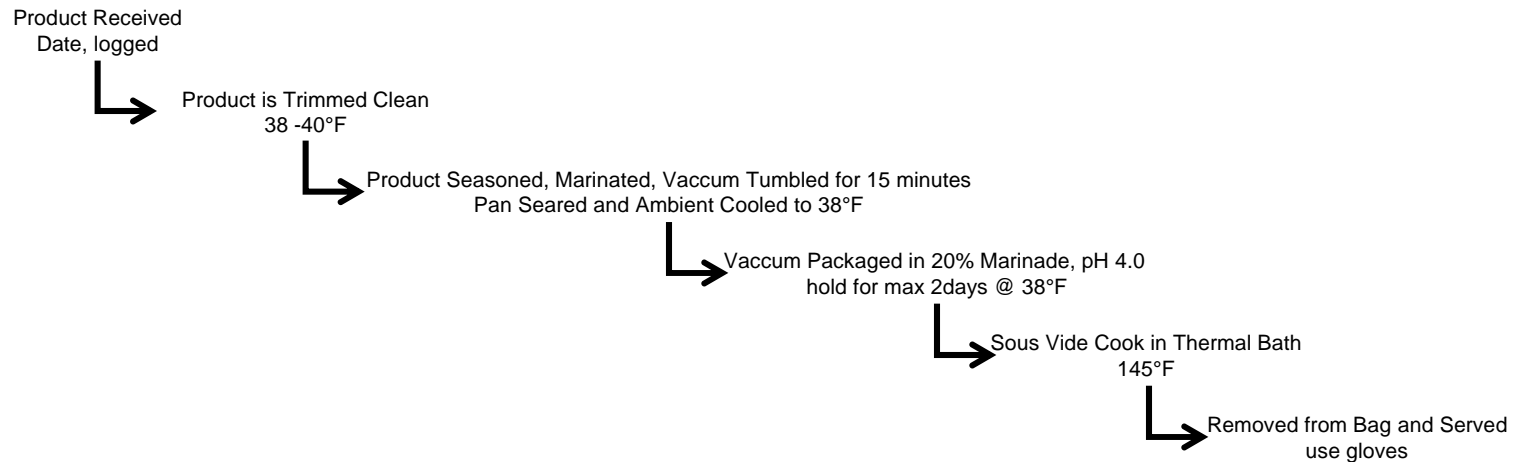
- Seasoning can be a little tricky when cooking sous vide
- Many herbs and spices act as expected, other are amplified and can easily overpower a dish
- Additionally, aromatics (such as carrots, onions, celery, bell peppers, etc.) will not soften or flavor the dish as they do in conventional cooking methods.
- Use mild oil – EVOO shouldn't be used – Salt lightly when packaging

HACCP Plan

Sous Vide



Protocol for Handling & Processing Pork Tenderloin- Jamaican Jerk Marinated



Basic Preparation

Sous Vide



Sous Vide typically consists of three stages:

- Pressure / Vacuum Sealing – seasoning or Compression
- Storage or shelf life enhancement
- Cooking – Temperature – Time
- Finishing



Pressure / Storage **Sous Vide**



- Chamber sealer has the option of pressure.
- Marination is intensified without oxygen.
- Shelf life is enhanced for storage up to 4 days.

MARINATING / BRINING:

- Generally static marinating or vacuum tumbling prior to packaging
- When cooking with the marinade it is best to cook off wine prior to pressurizing
- Brining has become increasingly popular in modern cooking

Cooking Time / Temperature **Sous Vide**



- The temperatures used in Sous Vide cooking are always below that of simmering water (190-200°F)
- The cap is 185°F – used for vegetable cookery – cook times vary based on cut and vegetable.

MEAT & FISH:

- Meat is varied in time based on thickness and connective tissue, muscle fiber.
- Fish proteins generally are delicate, and they denature and coagulate, that is, cook at around 12°F lower than meat. Soak fish in a 10% brine solution to help keep fish moist and manage albumen.

Cooking Time / Temperature **Sous Vide**



- Chicken Breast ➤ 145°F for 30 to 40 minutes
- Stuffed Chicken ➤ 145° for 55 minutes sear
- Pork Tenderloin ➤ 145° for 50 minutes
- Bone in Rib Eye ➤ 130°F for 12 to 15 minutes
- Steak Tenderloin ➤ 125°F 30 to 40 minutes
- Whole Tenderloin ➤ 130°F for 50 minutes to hour
- Salmon @ MR ➤ 120°F for 20 minutes
- Lamb Racks – ➤ 125°F for 55 minutes to hour
- Turkey Breast ➤ 150°F depends on size
- Duck Confit ➤ 180°F – 8 hours
- Vegetables ➤ 185°F – Size and cut

Demo & Tasting

Sous Vide



MENU

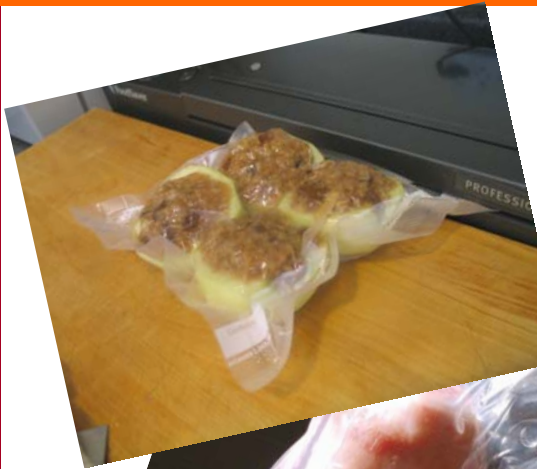
- 101 ZUCCHINI, PEPPER CILANTRO AND CHILI SPICED SOUP
(SOUS VIDE / COOK CHILL – FREEZE – RE-THERM)
- 101 JAMAICAN JERK MARINATED PORK TENDERLOIN WITH A MUSTARD
SEED TOMATO MANGO RELISH
(MARINATE – SEAR – SOUS VIDE – COOK)
- 101 BREAST OF CHICKEN WITH A DRIED FRUIT AND NUT STUFFING
(SEASONING – STUFF – SOUS VIDE – COOK – SEAR)
 - 101 CRISPY SALMON IN A CHABLIS DILL BUTTER
(SEASON – SOUS VIDE – COOK – SEAR)
- 101 CHUCK STEAK BRAISED SOUS VIDE WITH A HOISIN ROOT BEER GLAZE

SIDES:

- 101 CARROTS WITH RED ONION IN A CIDER MANDARIN TEA SYRUP
 - 101 FENNEL IN VANILLA BEAN AND PARSLEY BUTTER

Preparation Illustrations

Sous Vide



Processing Soup

Sous Vide



Cook Chill and packaging method



- Two Stage Filling of Soup

Fill bag with Fill Ring

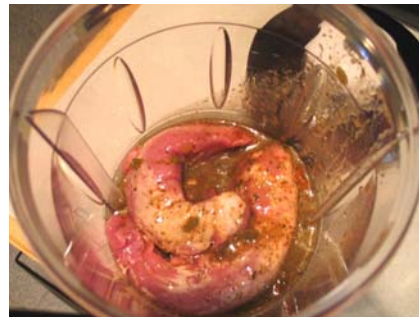


Heat Seal & Cooling - Product is 30 days refrigerator stable

Processing Pork Tenderloin
Sous Vide



Vacuum Tumbler



Add the marinade



Vacuum Tumble 15 min



Prepare for Searing



Vacuum Pack and Chill

Processing Chicken Sous Vide



Pound Out Breast



**Prepare the stuffing
and Activa**



**Fold bottom layer over
stuffing**



**Brush with Activa
Solution**



**Wrap in clear and
foil**



Sous Vide



Walk Aways **Sous Vide**



- Understand the theory and technique of Sous Vide preparation and cooking – Definition
- To identify Sous Vide as a new and innovative alternative cooking method for some food items
- Identify equipment and tools necessary
- Review Sous Vide applications
- Realize the safety procedures and Myths about Sous Vide safe handling practices/sanitation is key
- Basic Sous Vide preparations / techniques / cook times/practices.
- You're a cook, experiment and have fun

References

Sous Vide



- Douglas E. Baldwin – *Practical Guide to Sous Vide Cooking*
- Thomas Keller – “*Under Pressure*”
- T. Montville – *Food Microbiology an Introduction*
- Walter Zuromski Chef Services Group – Development

Equipment & Ingredient Resources

Sous Vide



Equipment –

- Poly-Science/Cuisine Technology
Thermal Circulators Other related equipment – www.cuisinetechnology.com
- BCU Plastics –
Thermal Circulators Other related equipment – www.lowtempcooking.com
- Day Mark Safety –
Cook Chill Bags, HACCP management materials/labels, bag stand and bags
www.daymarksafety.com
- **Plascon Packaging –Matt Klein – 231-675-3196**
Cook Chill Bags – all sizes and HACCP labeled

Ingredients –

- Hydrocolloids – GUMS – www.ticgums.com
- Activa – Ajinomoto / Transglutimanese www.ajiusafood.com
- Modified Food Starch / National Starch & Nestle Foods -

Sous Vide



Thank You!

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