

Sous Vide 101

Max Bareiss

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Outline

- What is sous vide?
- What can it do?
- **Sous vide machines**
- **Making a sous vide machine**
- Vacuum bagging
- Questions and Discussion

What is Sous Vide?

- “Under Vacuum”
- Cooking food in vacuum bags at a constant temperature in a water bath
- First used in 1974 by Georges Pralus in Roanne, France

What can it do?

- Great for meats
 - Beef, Pork, Chicken, Turkey, Fish
- Many vegetables are good
 - Root vegetables are good
 - Leafy greens generally don't work
 - High temperatures (85C/185F)
- Fruit is less common
 - Some people do pickled fruits in sous vide
- Some people do yogurt
- Breads, grains, pasta not done in sous vide
 - Relies on steam escaping, to some extent

What can it do?

- Eggs
 - <https://www.chefsteps.com/activities/the-egg-calculator>

A large egg
cooked for
40 minutes



130°F (54.4°C)



135°F (57.2°C)



140°F (60°C)



145°F (62.8°C)



150°F (65.6°C)



155°F (68.3°C)



160°F (71.1°C)



165°F (73.9°C)

<https://www.serious-eats.com/eggs#sous-vide-eggs>

Food Safety

- Food safety is time and temperature
 - Meats must be minimum 55C/131F
 - Poultry must be minimum 60C/140F
 - Cook time is generally 1 hour per ½ inch of maximum thickness
- https://www.fsis.usda.gov/wps/wcm/connect/9ab2e062-7ac8-49b7-aea1-f070048a113a/RTE_Poultry_Tables.pdf?MOD=AJPERES (Link doesn't work right now)
 - http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/EH/FPS/Food/SVGuidelines_FinalforWeb.pdf

Sous Vide Machines

- Either DIY or self-contained commercial units
- Basic Components
 - Water Pump
 - Heater
 - Temperature Probe
 - PID Controller

Self-Contained Sous Vide

- ChefSteps Joule
- Many generic units
- Generally \$60-\$100
- Convenient
- App Controlled
- Bring your own pot
- Low Power
- “Unitasker”



Build Your Own Sous Vide

- Buy separately:
 - Water Pump
 - Heater
 - PID Controller, relay, probe
 - Wiring and outlet



Build Your Own Sous Vide

- Powerful
- Generic
- Customizable
- Fun Project
- Not so convenient
- No app



Sous Vide Parts – Water Pump

- Aquarium Pumps
 - High Volume
 - Easy
 - Submersible
 - Cheaper
 - Some can't take the heat
- Outboard Pumps
 - Usually used for brewing
 - Fully heat tolerant
 - High volume
 - Requires extra mounting
 - Requires hoses
 - More expensive



Sous Vide Parts – Immersion Heater

- Big Heater
 - 1500W
 - Has guard
 - High temperature cutoff
- Small Heater
 - 300W
 - No high temperature cutoff



PID Controller, Relays, Wiring, Probe

- Integral with Outlets

- Built-in temperature probe, relays, outlets
- Some have Wi-Fi
- 1100W limit
- Limited customizability

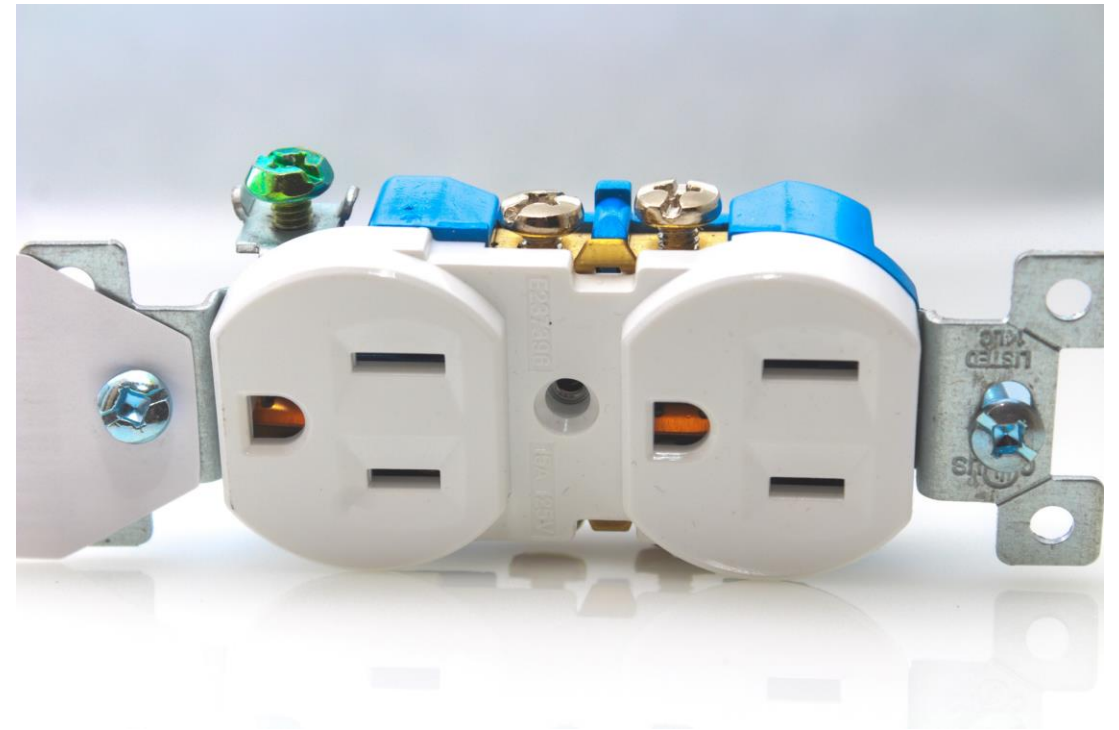
- Discrete

- Any power limit
- Highly customizable
- Get all the parts yourself



Sous Vide Parts – Wiring and Outlet

- Not needed in integral controller
- Make sure it's sized for your needs (15 amp vs. 20 amp)
- https://en.wikipedia.org/wiki/American_wire_gauge



Vacuum Bagging

- Vacuum Bag
 - Can't accidentally unseal
 - Has other uses
 - Works better with marinades
 - Bags are any size
 - Expensive
- Ziploc Technique
 - Easy
 - Cheap
 - Works
 - Bag can come open
 - Bags are fixed sizes



Simple Recipe – Chicken Breast

- Water bath: 63C/145F
- 2 chicken breasts per bag
 - Pinch of salt and pepper applied to each breast
- Cook minimum 1.5 hours, maximum 4 hours
- Eat or freeze directly in bag
 - Can also reheat in water bath at the same temperature



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