<table>
<thead>
<tr>
<th>Temperature</th>
<th>Description</th>
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<tbody>
<tr>
<td>RAW</td>
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<tr>
<td>50°C (122°F)</td>
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<tr>
<td>51°C (124°F)</td>
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<tr>
<td>53°C (127°F)</td>
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<tr>
<td>55°C (131°F)</td>
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<tr>
<td>57°C (135°F)</td>
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<td>59°C (138°F)</td>
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<td>60°C (140°F)</td>
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<td>61°C (142°F)</td>
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<td>63°C (145°F)</td>
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<td>65°C (149°F)</td>
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<td>67°C (153°F)</td>
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<td>69°C (156°F)</td>
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<td>71°C (160°F)</td>
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<tr>
<td>72°C (162°F)</td>
<td>DRY</td>
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</tbody>
</table>

This piece of meat was photographed over a minute after it was cut. Notice how much redder it is than it was immediately after it was cut (see Above photo). This cherry-red bleed-out is a typical characteristic of sous-vide and low temperature cooking.
Temperature and texture of salmon:
- 64°C (147°F) - dry
- 62°C (144°F) - overcooked
- 60°C (140°F) - good
- 58°C (136°F) - too toothy
- 56°C (133°F) - good
- 54°C (129°F) - good
- 52°C (126°F) - too toothy
- 50°C (122°F) - good
- 48°C (118°F) - overcooked
- 46°C (115°F) - raw/fishy
- 44°C (111°F)
- 42°C (108°F)
- 40°C (104°F)
- 38°C (100°F)
- 36°C (97°F)
pre/post sear tests at 230°C (450°F)

- pre-seared 30 seconds per side
- pre-seared 45 seconds per side
- pre-seared one minute per side
- no pre-sear post-seared 30 seconds per side
- pre-seared 45 seconds per side

increasing preference
The effects of searing on different thicknesses of sous-vide steak:

Three steaks with a surface area much larger than their thickness were vacuum packed without seasoning and heated in a circulating water bath held at 52.2°C (126.0°F). The steaks were removed from the bath after 1.25 hours, probed with a hypodermic thermocouple into the center, brushed with oil, seasoned with kosher salt, and seared for 30 seconds per side on a cast-iron pan heated to 316°C (600°F). While the steaks were being prepped for searing, they rested on a wooden cutting board in the kitchen. The ambient temperature of the kitchen was 34°C (93°F). Temperatures were recorded at intervals every 15 seconds, not continuously.

That all three steaks reached their minimum temperatures on the reading where they were taken off the heat is merely a coincidence.

Note the rapid temperature drop during the sear—probably due to cooling effects from moving the steaks.

- 6m30s 56.3°C (133.3°F)
- 6m45s 55.3°C (131.5°F)
- 7m15s 51.0°C (123.8°F)
INHERENTLY SAFE PASTEURIZED ZONE. BACTERIA ARE KILLED ALMOST INSTANTLY IN THIS ZONE.

TIME/TEMPERATURE ZONE. IN THIS ZONE BACTERIA ARE BEING KILLED; BUT NOT INSTANTLY. SAFETY IS DETERMINED BY A COMBINATION OF WHAT YOU ARE COOKING, HOW LONG YOU COOK IT, AND AT WHAT TEMPERATURE YOU COOK IT.

Cooking time in minutes once internal temperature is reached to safely pasteurize poultry and beef at a given temperature. The poultry curve represents a 6.5D pasteurization for salmonella. The beef curve represents a 7D pasteurization for E. coli. Temperature data taken from the Food Safety and Inspection Service (FSIS)*.

THIS IS THE DANGER ZONE. BACTERIA AREN'T BEING KILLED HERE. UNTIL YOU REACH 50°C, THE HIGHER THE TEMPERATURE, THE FASTER BACTERIA GROW. ABOVE 50°C, BACTERIAL GROWTH DECLINES AND STOPS.

THIS IS THE REFRIGERATION SAFETY ZONE

Food code safe poultry
- temperature. Instantly safe.

Food code safe pork, ground beef, and eggs
- temperature. 15 seconds makes it safe.

Food code safe roasts
- and steaks temperature.
  Safe in under a minute.

FDA minimum
- hot-holding temperature.

FSIS bacterial kill zone begins.

Pathogen growth stops.**

Bacterial spores
- germinate here on cooling.**
white just set but looks ghostly and breaks as soon as you touch it. useless.

the perfect egg to put on toast. white soft but good. a quick dip in simmering water will make it look traditional.

yolk fully set but very creamy. white firmer.

the perfect yolk to roll into sheets. whites not as nice as 65.

yolk more granular.

hard boiled.