

Char-Broil Infrared Cooking System Presentation

Types of Heat Transfer used in cooking

1.



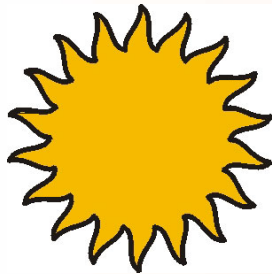
Conduction

2.



Convection

3.

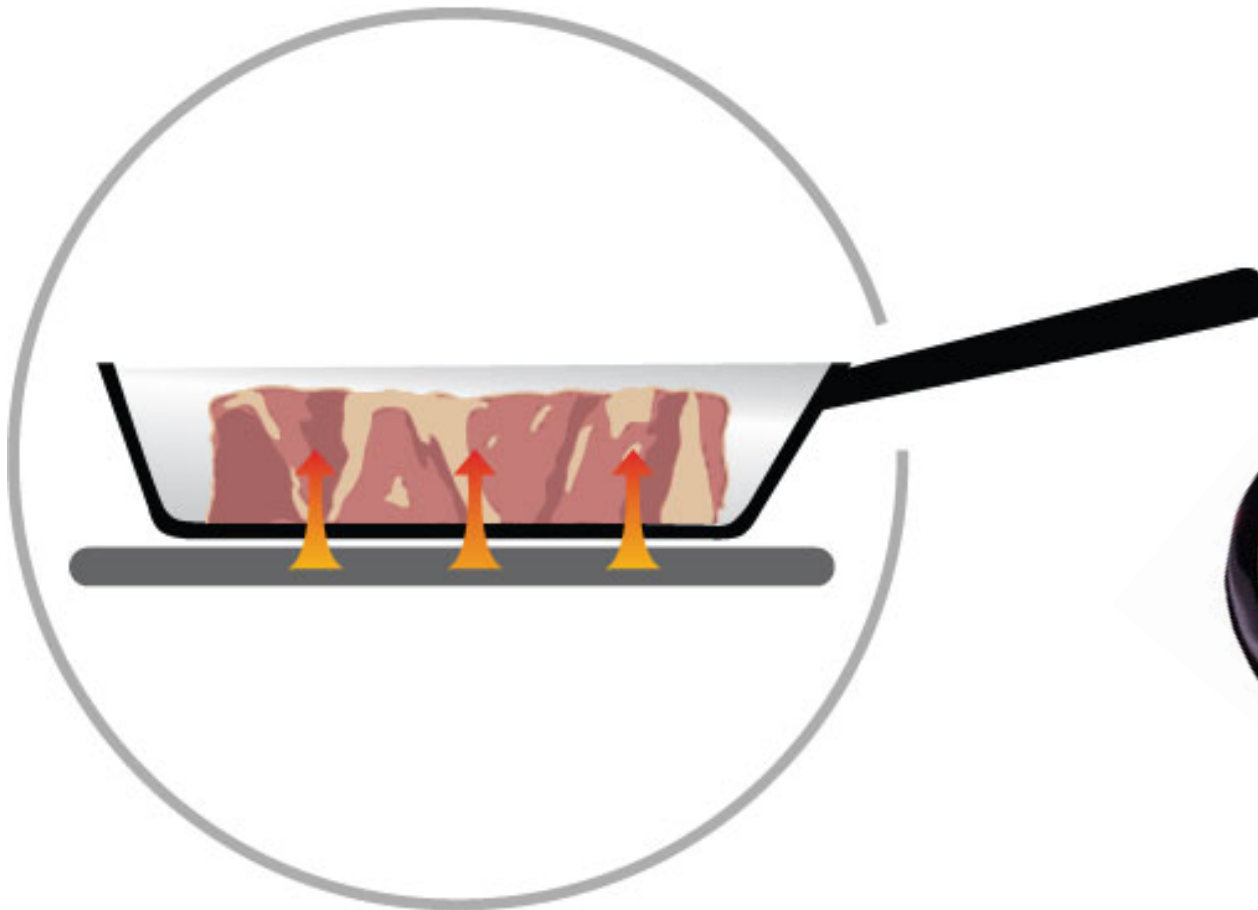


Radiant

Heat Transfer in Cooking

Conduction

- Requires direct contact between two objects.
- Used frequently in cooking – sautéing & pan frying

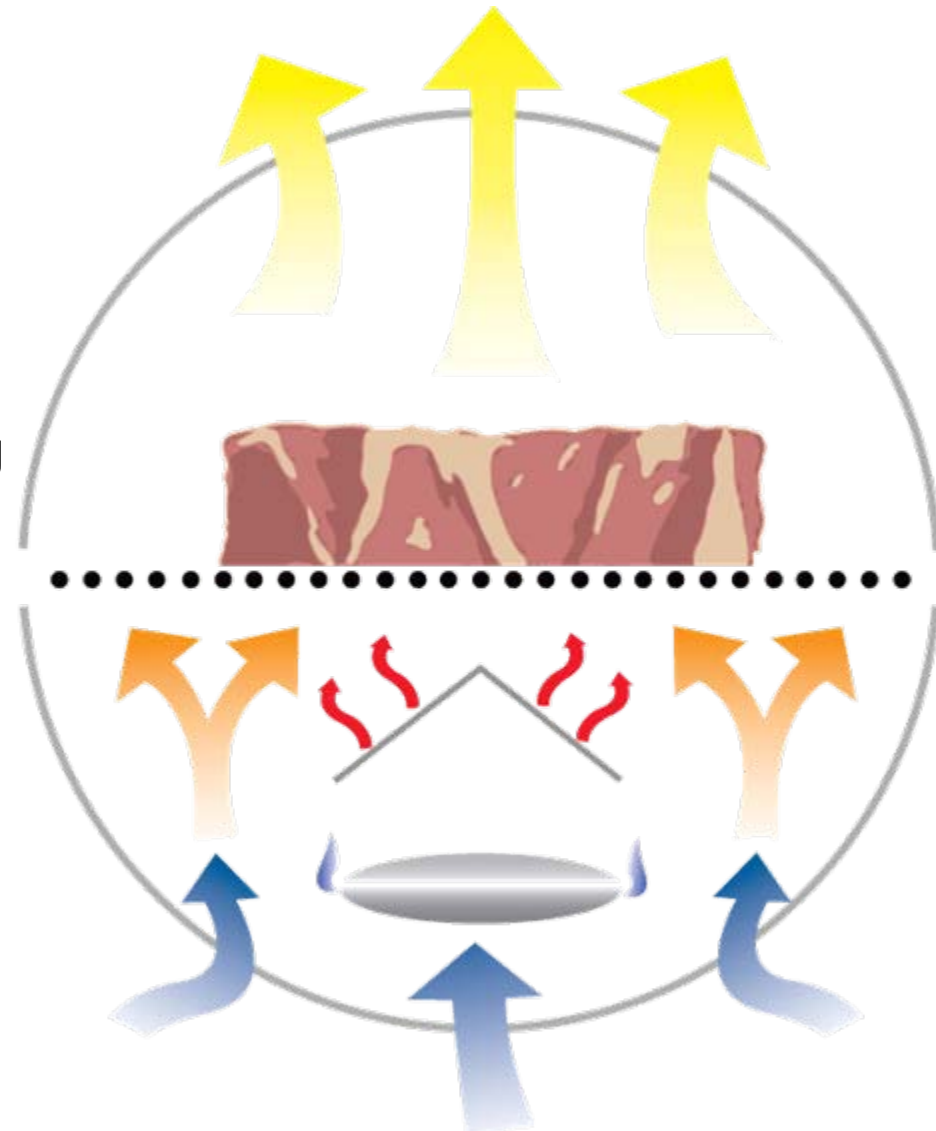


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Heat Transfer in Cooking

Convection

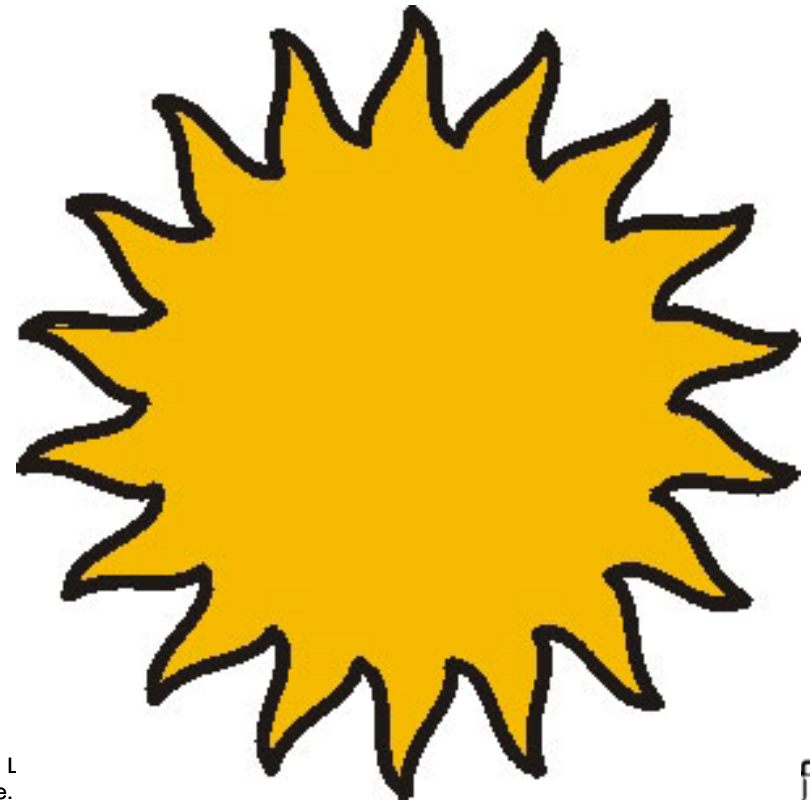
- Heat transfer via liquid or gas (air, water, oil)
- Heated molecules physically bump into other molecules, transferring some of their energy
- Used frequently in cooking – boiling, deep frying, conventional gas grilling



Heat Transfer in Cooking

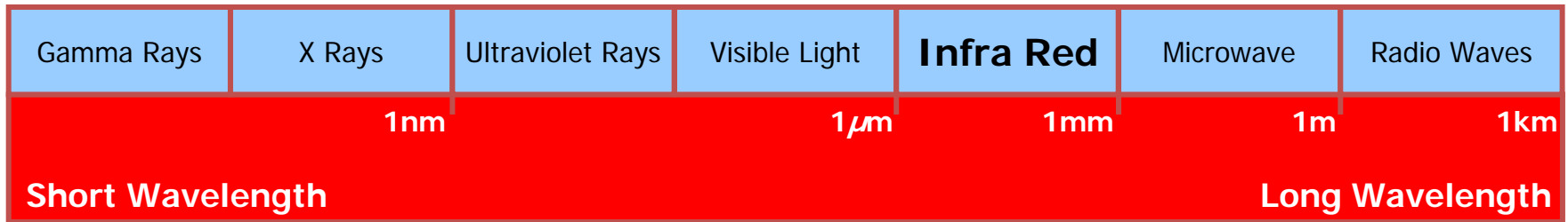
Radiant

- Does not rely on an intermediary (i.e. air, water, oil) to conduct heat
- Heats the object (meat), not the air
- No air movement required for heat transfer
- Highly efficient
- Used as Infrared in cooking

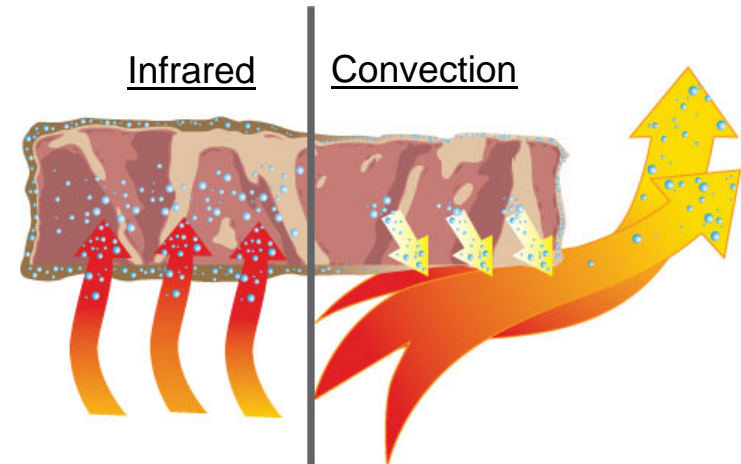


This is Infrared...

- Infrared energy is comprised of those frequencies just beyond the visible spectrum
- Simply put, it is light we cannot see, but our bodies detect as heat
- Most electromagnetic energy can cause heating, but infrared is the perfect choice for cooking
- When infrared frequencies strike organic molecules (food), the molecules vibrate, thereby creating heat



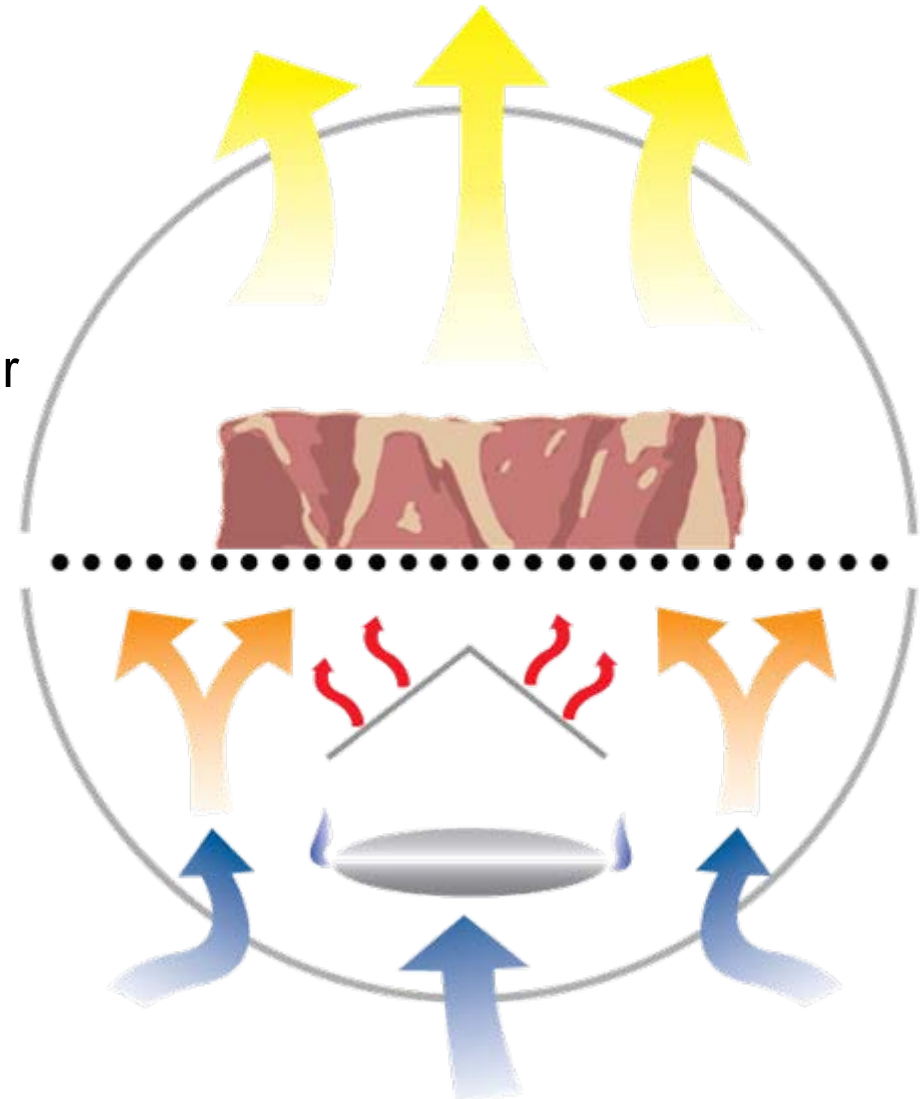
- Meat has a moisture saturated boundary layer
- Infrared penetrates this boundary layer without displacing it
- Convection dries out the boundary layer while heating it
- This is why a hamburger shrinks on a convective grill, but not on an infrared grill



Grill Cooking Systems

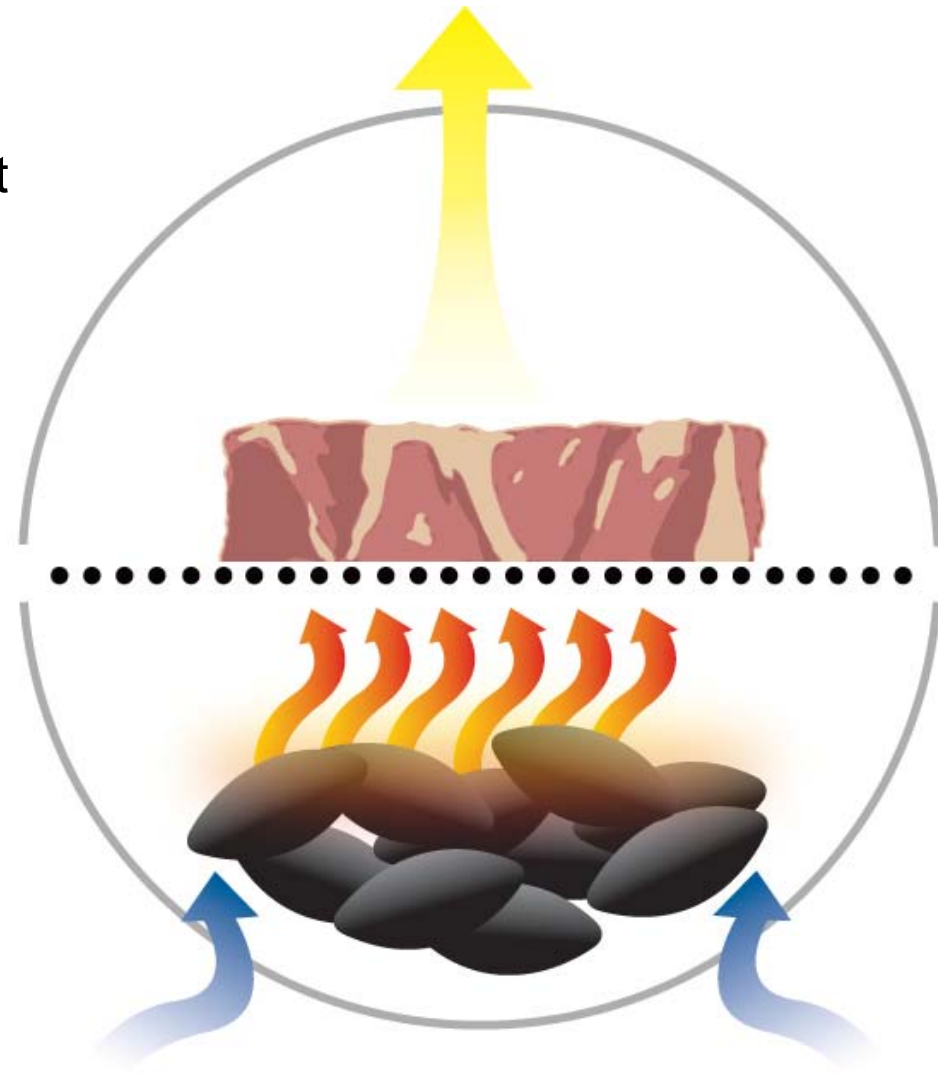
Convective Gas Grill

- Traditional burner used in gas grills
- Simple burner to build and operate
- Negligible infrared emitted from burner tents
- Convection dries out meat while heating it
- Unfavorable attributes
 - High air flow required for combustion
 - Exposure to grease flare-up



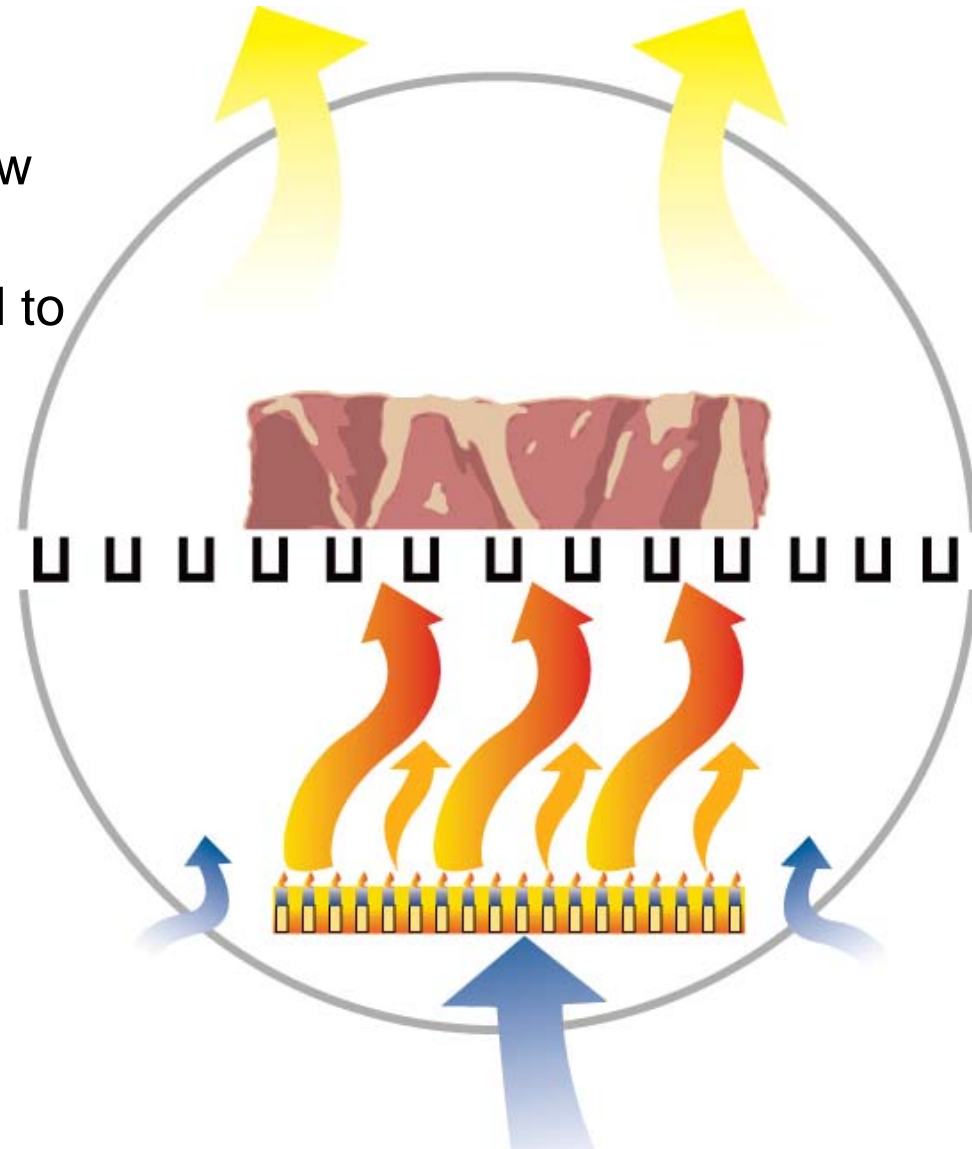
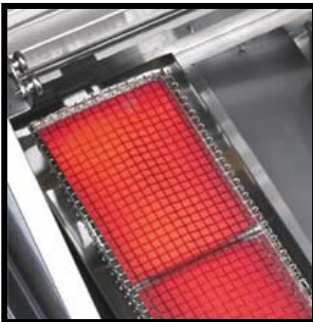
Charcoal

- Bed of coals emits infrared
- What people love about charcoal, but don't know
- What was lost when we went to gas
- Unfavorable attributes
 - High air flow required to sustain combustion
 - Exposure to grease flare-up



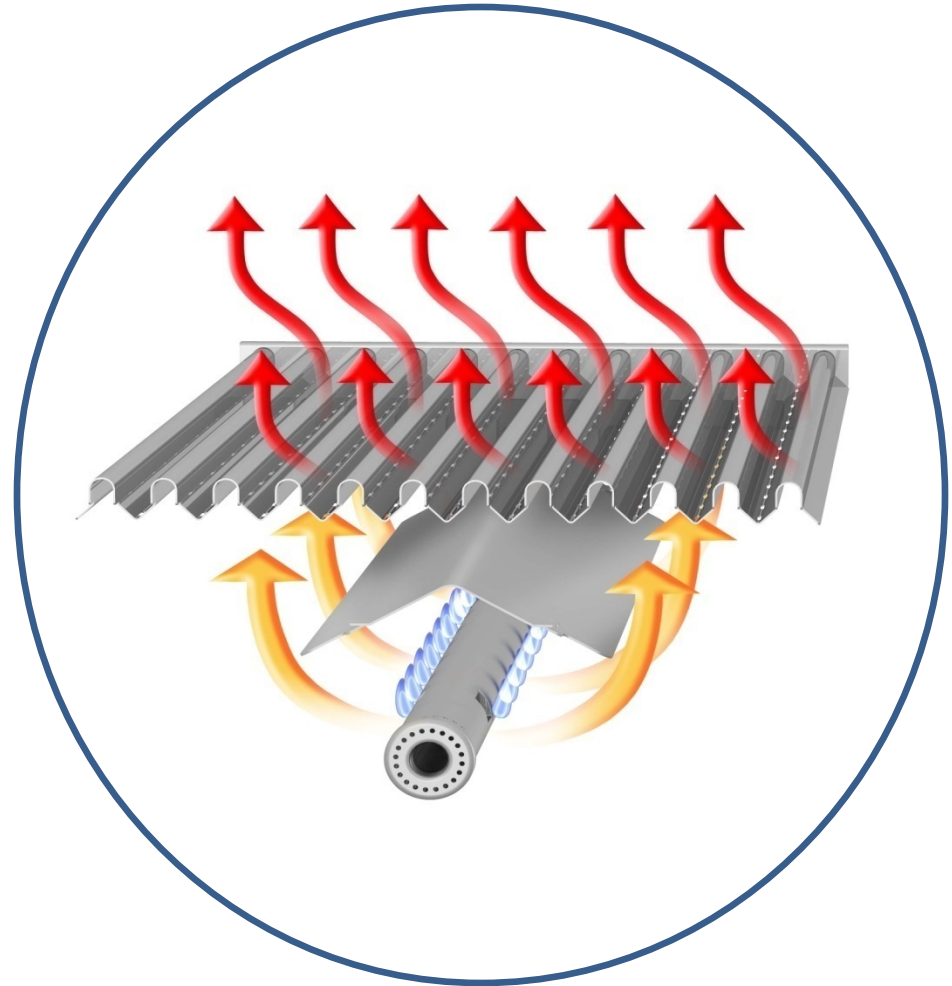
IR Ceramic Burner

- Combustion at emitter face
- Lower primary and secondary air flow requirement
- Very hot – 1800F – surface exposed to grease contact (flare-ups)
- 40% radiant, 60% convective
- Unfavorable attributes
 - Difficult burner to maintain and operate
 - High air flow required to sustain combustion – dries out food
 - Exposure to grease flare-up

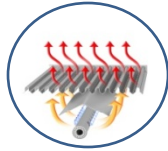


Char-Broil Precision Flame™ System

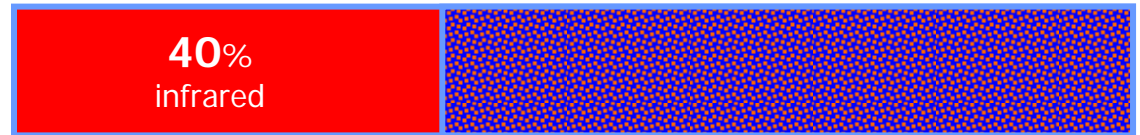
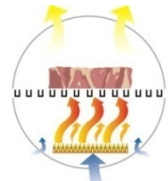
- Cooks with infrared energy – minimal air flow to dry out meat
- Infrared energy created by a patented infrared emitter placed just below the cooking grate
- Convective burner provides simple and reliable operation
- Burner and ignition protected from grease
- Wide temperature range for cooking a variety of foods
- Infrared across the entire grill surface
- Oxygen Free Zone – Virtually eliminates flare ups
- Even heat distribution – No hot or cold spots



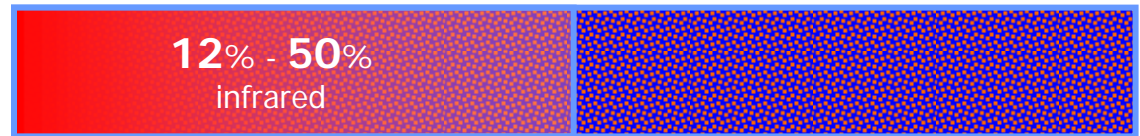
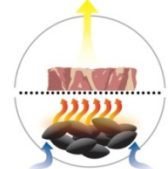
**Char-Broil
Precision
Flame**



**IR Ceramic
burner**



Charcoal



**Convection
gas grill**

