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Safe Food is Good Business – Cooking Beef Roasts Safely

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There are specific requirements for safely cooking beef and corned beef roasts. These requirements vary depending on the size of the roast, the type of oven used, and desired final roast temperature.

Oven Types and Roasting Methods

To select the proper oven temperature, you must know the type of oven and the roasting method that will be used, as well as the size of the roast.

Roasting Methods

Dry heat: Fat side up on rack in a shallow roasting pan. Do not add water or cover.

Convection: Hot, dry circulating air that allows for 1/3 faster cooking time.

High humidity (moist heat methods):

- Braising: Brown meat, add small amount of liquid, cover tightly, and let simmer.
- Cooking in bag: Use cooking bags designed for oven use, no added liquid.
- Cooking in liquid: Cover with liquid and gently simmer until tender.

Oven temperature based on oven type and size of roast.

	Oven Temperature	
Oven Type	Roasts less than or equal to 10 lbs.	Roasts larger than 10 lbs.
Dry heat	350 F.	250 F.
Convection	325 F.	325 F.
High* Humidity	250 F. or less	250 F. or less

* Relative humidity greater than 90% for at least one hour. This is achieved in nearly all high humidity cooking conditions where moist heat is used. The relative humidity can be measured in the cooking chamber or any exit (exhaust) of the oven.

Minimum Holding Times

After the correct oven temperature has been selected based on the roast size and oven type, the roast must be cooked to the desired internal temperature and then held at that temperature for the amount of the time specified in the following chart to ensure a safe food product. Holding time may include post oven heat rise.

Holding times for internal temperature of 130 F. - 144 F.

Temperature	Time in Minutes
130 F.	112
131 F.	89
133 F.	56
135 F.	36
136 F.	28
138 F.	18
140 F.	12
142 F.	8
144 F.	5
145 F.	4


Holding times for internal temperature of 147 F. - 158 F.

Temperature	Time in Seconds
147 F.	134
149 F.	85
151 F.	54
153 F.	34
155 F.	22
157 F.	14
158 F.	0

Example

To cook an eight-pound beef roast in a convection oven, set the temperature to 325 F. If the desired final temperature of the roast is 140 F., the roast must be held for 12 minutes after it reaches 140 F. to ensure a safe product.

Sources:
 South Dakota Department of Health Food Service Code
 1997. Health systems development and regulations
 office of health protection.
 Handbook of Food Preparation. American Home
 Economics Association. 1993

 Reviewed by the South Dakota Department of Health, David Micklos, Administration Office of Health Protection.

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