

LOW TEMPERATURE COOKING INTRODUCTION

LOW TEMPERATURE COOKING FACTS

SHRINKAGE CONTROL AND COOKING TIME

THERE ARE TWO MAJOR FACTORS CONTROLLING MEAT SHRINKAGE OR COOKING LOSSES.

1. **Temperature at which meat is cooked:**

The higher the temperature at which meat is cooked the more shrinkage will result. Over-cooked meat also results in higher losses. Higher temperatures and over-cooking draws moisture to the surface and this moisture evaporates or drips out of the meat.

2. **Internal temperature of the meat:**

Like over-cooking, as meat is brought to a higher internal temperature shrinkage is increased. For these two reasons, it is suggested most cuts of red meat be cooked at 250°F (121°C) and that all cooking be based on internal product temperature. The use of a thermometer is encouraged.

THERE ARE FOUR MAJOR FACTORS INVOLVED IN DETERMINING COOKING TIMES FOR MEAT:

1. **The degree of aging on the meat:**

Aged meat will cook faster, shrink more, and has a much shorter holding life than fresh meat.

2. **Internal temperature before cooking:**

Meat should be placed in a preheated oven directly from a refrigerated temperature of 38° to 40°F (3° to 4°C). Meat cooked from a frozen state will require approximately one and one-half to two times the normal cooking time. In addition, freezing ruptures tissue cells creating additional moisture loss during the cooking process and will result in more shrinkage.

3. **Desired degree of doneness:**

The higher the degree of internal temperature required, the longer the necessary cooking time. Cooking times in this guideline are based on the most popular internal product temperatures.

4. **Quantity and quality of product.**

TO CALCULATE MEAT SHRINKAGE

	STARTING WEIGHT (Weight of Raw Product)	
-MINUS:	ENDING WEIGHT (Weight of Cooked Product)	
	EQUALS: AMOUNT OF SHRINKAGE	
	AMOUNT OF SHRINKAGE (Total Weight Lost in Cooking)	
÷ DIVIDED BY:	STARTING WEIGHT (Weight of Raw Product)	
	EQUALS: PERCENT OF SHRINKAGE	
EXAMPLE:	Raw Beef Roast: 100 lb (45 kg)	
	Cooked Beef Roast: -95 lb (-43 kg)	
= AMOUNT OF SHRINKAGE:	5.0 lb (2 kg)	
SHRINKAGE DIVIDED BY	0.05 = 5%	0.05 = 5%
STARTING WEIGHT:	100 $\sqrt{5.0}$	45 $\sqrt{2.0}$
	EQUALS: PERCENT OF SHRINKAGE	

PREVENTING BACTERIA GROWTH

The surface of raw meat may become contaminated in processing, handling by the butcher or chef, or by other means. Food contamination can also be caused by unsanitary personal hygiene and work habits, unclean slicers, knives, and probes, or by faulty operational procedures. It is important, therefore, that

sanitary procedures be followed at all times during food preparation and handling. This is your main protection in guarding against food contamination. For additional information see the *Cleaning and Maintenance* section of this manual.