

How to Use and Calibrate Your Food Thermometer

One important tool to have in your kitchen is a food thermometer. It measures the temperature of food to ensure it is cooked to a safe temperature to eat. Using a thermometer can:

- Prevent food from being undercooked, helping to prevent foodborne illness;
- Keep food from being overcooked, which can affect the flavor and texture;
- Hold food at a safe temperature

Your Senses are Not Safe or a Reliable Way to Determine Doneness!

You **cannot** determine doneness by:

- Seeing if juices run clear;
- Tasting;
- Touching;
- Listening; or
- Smelling

Food thermometers are only found in 67% of U.S. homes. Less than 40% of Americans ALWAYS use this potentially lifesaving tool.

Types of Food Thermometers

There are many types of low-cost (\$3-\$10) food thermometers.



Figure 1. Digital instant-read thermometer

Digital Instant-Read Thermometer- Best Choice

- Pros**
- Easy to use;
 - Reads in 10 seconds;
 - Easy to read the numbers; and
 - Works for thick and thin foods, place at least "½" deep

Dial Instant-read Thermometer

Pros

- Readily available in stores; and
- Available in large print dials for easier reading

Cons

- Reads in 15-20 seconds;
- Must be placed 2-2 ½ inches deep in food for an accurate reading (temperature is averaged along the probe, from tip to 2-3 inches up the stem);
- Cannot measure thin foods unless inserted sideways;
- Are less reliable and precise than digital versions;
- Needs frequent re-calibration; and
- Can be difficult to read.



Figure 2. Dial instant-read thermometer

Digital and Dial Thermometers:

- Are not designed to remain in food while it is cooking;
- Are used to check the internal temperature of a food at the end of cooking time;
- Must be inserted into the thickest part of the food and in several places; and
- Can be used in roasts, casseroles, and soups

When and How to Calibrate Your Thermometer

- Daily is ideal, but at least weekly;
- When it is dropped; and
- When it goes through severe temperature change.

Remember: A thermometer that is not accurate will give misleading information.

Use Boiling Water or Ice Water Methods to Calibrate a Dial Instant-Read Thermometer

You must consider altitude and barometric pressure variations when calibrating a thermometer. The boiling point of water decreases as altitude increases. Temperature calibrations need adjustments at higher altitudes. Water in Ocean City, MD, which is 4 feet above sea level, would boil at 212°F. Water in Red House, MD would boil at 208°F, because the town is 2,545 feet above sea level.

To calibrate your **dial instant-read thermometer**, use the ice water method and follow these steps:

1. Fill a large glass with finely crushed ice.
2. Add potable (drinkable) water to the top of the crushed ice and stir well, about 30 seconds.
3. Remove the food thermometer from the case, and hold thermometer on the head, not the stem.

Do NOT handle the stem of the thermometer with your fingers or hands. This will affect accuracy of the reading.

4. Submerge the stem at least 2 inches into the ice mixture. The stem should **not** touch the sides or the bottom of the glass.

5. Wait at least 30 seconds or when the needle stops moving before reading.

6. If the thermometer reads 32°F, the thermometer is correctly calibrated. If not, you will need to make adjustments.

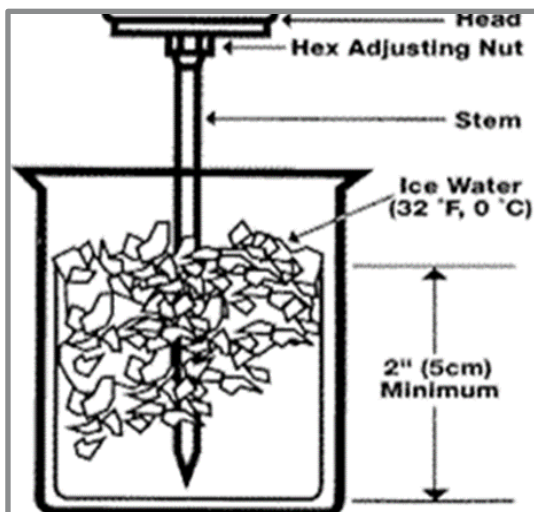


Figure 3. Set up for ice water calibration for a dial thermometer

Do not remove stem from the ice mixture when you are calibrating.

7. Using a small hex wrench, adjust the hex nut under the head of the thermometer until the needle points to 32°F (Figure 3).

To calibrate your **digital instant-read thermometer**, read the manufacturer's instructions.

Cleaning and Storing Your Thermometer

Use cleaning/sanitizing wipes or use a 5-step process to clean your food thermometer **before** and **after** every use:

1. Wash thermometer with hot soapy water;
2. Rinse with clean hot water;
3. Sanitize with a solution that is safe for food contact surfaces;
4. Air dry;
5. Clean the storage case too.

NOTE: The thermometer probe is sharp so handle carefully to avoid injury.

ALWAYS store your thermometer in the plastic case in a location where it will not be dropped or jostled.

USDA Recommended Safe Minimum Internal Temperatures				
145°F	145°F	160°F	160°F	165°F
with a 3-minute rest time				
Beef, Pork, Veal & Lamb Steaks, Roasts & Chops	Fish	Beef, Pork, Veal & Lamb Ground	Egg Dishes	Turkey, Chicken & Duck Whole, Pieces & Ground

www.FoodSafety.gov

USDA Meat & Poultry Hotline
1-888-MPHotline (1-888-674-6854)

CLEAN SEPARATE COOK CHILL

Food Safety and Inspection Service

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Figure 4. Minimum safe internal temperatures for different foods

If you have a question about meat, poultry, or egg products, Call the USDA Meat and Poultry Hot line, toll Free at: 1-888-MPHotline (1-888-674-6854). The Hotline is Open Year-round Monday through Friday from 10 a.m. to 6 p.m. ET (English or Spanish). Recorded Food Safety messages are available 24 hours a day.

Checking Food Temperatures Using Your Thermometer

Check the temperature towards the end of cooking time, but before the food is expected to be done. Thermometers have a sensor area on the metal stem, around ½ inch to 2 inches from the bottom. Insert the stem of the thermometer into the food up to the mark or “dimple” on the bottom of the thermometer, usually the center of the food. The thermometer should **NEVER** touch the bottom or edge of the pan the food was cooked in.

To measure temperatures for specific foods:

Roasts, steaks or chops- Insert into the thickest part and away from bones or fat.

Ground meat- Insert the thermometer into the thickest part of a meatloaf or sideways into a patty.

Casseroles- Insert in the center or thickest part without touching the side or bottom of the cooking pan.

Poultry- Insert into the inner thigh near the breast, avoiding any bones (Figure 5).

Wait 10-20 seconds after you insert the thermometer before reading it. Check the temperature in more than one location of the food.



Figure 5. USDA infographic for taking the temperature of whole cooked poultry

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Safe Minimum Cooking Temperatures Charts

Food	Type	Internal Temperature (°F)
Ground meat and meat mixtures	Beef, pork, veal, lamb	160
	Turkey, chicken	165
Fresh beef, veal, lamb	Steaks, roasts, chops Rest time: 3 minutes	145
Poultry	All Poultry (breasts, whole bird, legs, thighs, wings, ground poultry, giblets, and stuffing)	165
Pork and ham	Fresh pork, including fresh ham Rest time: 3 minutes	145
	Precooked ham (to reheat) Note: Reheat cooked hams packaged in USDA-inspected plants to 140°F	165
Eggs and egg dishes	Eggs	Cook until yolk and white are firm
	Egg dishes (such as frittata, quiche)	160
Leftovers and casseroles	Leftovers and casseroles	165
Seafood	Fish with fins	145 or cook until flesh is opaque and separates easily with a fork
	Shrimp, lobster, crab, and scallops	Cook until flesh is pearly or white, and opaque
	Clams, oysters, mussels	Cook until shells open during cooking

Figure 6. Keep this Handy Temperature Guide in Your Kitchen

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