

# Vortex

## Raytek Infrared Thermometers: Maintaining **Food Safety**



**When working with food, you need to know immediately that your products are safe. Raytek's complete line of noncontact infrared thermometers provides a fast and easy method of monitoring temperature on the surface of food where bacteria begins to grow. These reliable and accurate tools allow you to save work-hours while preventing cross-contamination or product damage.**

**A Raytek® thermometer will pay for itself the first time you use it, whether your business involves:**

- Health Inspection
- Restaurants
- Food Production/Processing
- Canneries
- Dairies
- Food Catering
- Supermarkets
- Food Delivery

**A**s many as 9,000 Americans die each year from foodborne illness. Keeping food safe from contamination and bacteria is an issue that affects all of us, especially anyone working in a restaurant, supermarket, or any business involving food service or preparation.

Food safety requires strict temperature guidelines. The Hazard Analysis Critical Control Point Program (HACCP) provides food safety procedures that look at the flow of food between different temperature zones from the receiving dock to the table, and all the stops in between. Infrared temperature measurement is the fastest and most efficient method of monitoring food safety along the Critical Control Points (CCP) in HACCP standards.

Following proper temperature monitoring procedures is much easier when the process is quick and convenient. This is the appeal of point-and-shoot infrared (IR) thermometers. They are small, lightweight, simple to use, and accurate—in fact, the Food and Drug Administration (FDA) suggests the use of infrared thermometers in the 1999 Federal Food Code, Annex 4, Section 8.

Raytek noncontact thermometers are widely used to ensure that food is safe from time/temperature abuse at every step of processing and preparation. Along with contact methods requiring use of probes and conventional thermometers, immediate noncontact scanning of surface temperatures is part of a fully integrated and comprehensive food safety program.

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# How Can a Noncontact Thermometer Help You Ensure Food Safety?



**Storage**  
Check produce storage temperature.



**Holding and Serving**  
Monitor temperatures in holding areas.

"When we used a conventional thermometer, we found we had to wait several minutes for it to stabilize, limiting us to two or three measurements per refrigeration unit. With an ST, we can now take twenty or thirty readings in less than half the time. We love them!"

*Ruben Oropeza, Supervisor  
Department of Environmental  
Management  
Napa County, California*

**M**onitoring temperatures is crucial to ensure food quality and safety—which is precisely why food service professionals rely on Raytek noncontact IR thermometers. These easy-to-use tools read surface temperatures without contact, which avoids cross-contamination or damage to food products. As reliable and time-saving tools, IR thermometers can take a temperature measurement in less than half a second.

Raytek thermometers give crucial information about hazardous conditions by providing quick temperature readings of food surfaces, which is particularly important considering that foodborne bacteria usually begins to grow on the surface of food products. Internal temperatures still need to be checked using probes. Several Raytek IR thermometers feature internal probes and provide a fully integrated monitoring systems. Convenient scanning, in addition to using a probe thermometer, encourages more frequent readings, which increases safety at any food handling facility.

Some Raytek thermometers are small enough to fit in your pocket. So if you need to know a temperature, you don't have to think twice. You just pull the trigger and you have an instant, accurate reading without ever having to touch or contaminate the food. The 1999 Federal Food Code recognizes the effectiveness of IR thermometers when it says, "The infrared thermometer quickly registers surface temperatures, which facilitates general food safety system surveillance by allowing the scanning of numerous food temperatures over a short period of time."

## HACCP and Temperature Issues

Many food service professionals are familiar with the food safety procedure known as HACCP. HACCP is now mandated for meat, poultry, and seafood production plants, as well as fruit and egg process plants. HACCP looks at the flow of food as it travels in and out of the Temperature Danger Zone (40° to 140°F, or 4.4° to 60°C) which means tracking and monitoring food product temperatures at each step from the receiving dock to the table.

If your operation is already using the HACCP system, you're familiar with how temperature plays a key role in maintaining food safety and quality, specifically in monitoring CCPs. A CCP is any place along the food flow where time/temperature issues are critical to ensure food safety. Let's look at some of the CCPs that can be monitored with a noncontact thermometer.

### Monitoring Food

**Receiving.** Quality assurance begins at the receiving dock. When a delivery of fresh or frozen food arrives, use your Raytek thermometer to check that the products, shipping crates, and internal temperature of the delivery truck are all at the right temperatures.

**Storage.** Once received, verify that frozen and chilled foods are stored at or below 40°F (4.4°C) to assure freshness and quality. In supermarkets where product may be stacked unevenly or too high in display cases and freezers, check to find warm spots or uneven cooling. Also, you can quickly and frequently monitor proper temperatures of all items stored in walk-ins.

**Cooking.** Exact temperatures become vital to preventing food-borne illness. To avoid bacteria growth, many foods must be cooked to a specific temperature. A Raytek thermometer instantly confirms that your surface temperatures are within safe parameters. In order to confirm internal temperatures, you can use Raytek thermometers that feature an internal probe.

**Holding and Serving.** Food products that are ready to be served or sold and are located in holding or serving areas must be kept out of the Temperature Danger Zone which is 40 to 140°F or 4.4 to 60°C.

- **Cold Holding.** With your IR thermometer, quickly verify that the temperature of products held in open-top refrigeration units, such as fresh meat or fish displays, cold buffets, or preparation units, do not exceed 40°F (4.4°C), as mandated by the FDA's 1997 Food Code.

- **Hot Holding.** Warm prepared foods that are kept in steam tables, warming ovens, and other heated serving and holding areas should be carefully monitored to remain at 140°F (60°C) or above. You can use your IR thermometer to check the internal temperatures of soups, gravies, and other liquid foods by agitating them before reading.

**Cooling.** Improper cooling is the number one cause of foodborne illness. After food has been cooked and served, use your Raytek thermometer to confirm that leftovers are taken down to an appropriate temperature—from above 140 to below 70°F (60 to 21.1°C) within two hours, and then down to below 40°F (4.4°C) within another four hours.

**Reheating.** The last important temperature-related checkpoint is reheating. Your IR thermometer can confirm that foods are being reheated to at least 165°F (73.9°C) to destroy any bacteria caused by improper cooling or storage techniques.

### Monitoring Equipment

You can use your noncontact thermometer to check more than just the temperature of food. You can also evaluate the performance of your equipment and machinery.

- Detect hot spots or leaks by taking sample spot readings of freezers, walk-in coolers, refrigeration lines, compressor motors, electrical, and HVAC equipment.
- Safely check the temperature and performance of ovens, ranges, rotisseries, deep fryers and dishwashers.
- Check clean dishes immediately after washing to ensure that high enough temperature levels were achieved in the dishwasher for sanitation purposes.

### Other Uses in Gourmet/Specialty Cooking

Many specialty food recipes call for very specific preparation temperatures. For example, sugar used in meringues and icings relaxes to the softball stage at 220°F (104°C); at 320°F (160°C) caramel reaches the stage for flavoring and decorating, and at 350°F (177°C) it darkens. By using an IR thermometer you can instantly check these temperatures and avoid the mess of using a contact thermometer.

Experience notwithstanding, it is often difficult to know when cooking surfaces have reached the proper temperatures. For example, a common way to test whether a griddle is "pancake ready" is to see if a drop of water skittles across its surface. But water does this at a wide temperature range—roughly between 320° to 440°F (160° to 227°C)—whereas pancakes griddle best between 350° and 370°F (177° and 188°C) and meat, on the other hand, sears best at about 450°F (232°C). By instantly knowing these temperatures you can avoid the guesswork and ensure food is cooked perfectly.

Raytek noncontact IR thermometers can help you monitor everything from food to fixtures with one hand-held instrument.



**Cold-holding**  
Inspect chilled foods for warm spots.



**Equipment Performance**  
Verify temperatures in rotisseries and ovens.

### Accurate temperature measurement tips

- ✓ *When measuring shiny surfaces, such as aluminum and stainless steel, the reflectivity of the surface will skew the reading of an IR thermometer unless you accommodate for it. Either coat surfaces such as griddles or cooking pans with a non-stick cooking spray before you take your reading, or place a small piece of masking tape on the metal surface and measure the taped area.*
- ✓ *An IR thermometer can go from kitchen to cold storage (above freezing) and still provide an accurate reading if given time to acclimate to the new ambient temperature. It's best to leave the unit where it will be used most often. Note: If the unit is left in an environment below freezing, it will temporarily fail to operate properly.*
- ✓ *Use an IR thermometer to read internal temperatures of liquids, such as soups or sauces, simply by stirring the liquid and then reading the surface temperature. Keep the thermometer away from steam to avoid condensation on the lens, which will skew your reading.*

"Before, we would have to get a digital thermometer between two cases of [incoming] product, moving cases to get an unexposed case facing. If that didn't work, we'd have to open up a case. And finally, we may have had to probe the product. With our Raytek unit, we can just point and shoot. There's no sacrificing product."

Susan Ciani  
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