

Time and Temperature Control for Safety (TCS)

Foods that have potentiality to grow bacteria faster and require time and temperature control to prevent unsafe growth of bacteria are known as time and temperature control for safety (TCS) foods. These foods are also called potentially hazardous foods as bacteria tends to grow faster if they are held at danger zone (41° F – 135° F) for more than 4hours leading to food borne illnesses. Foods that are more vulnerable to pathogen growth than others are the foods,

- having high carbohydrate and protein levels
- that are neutral or slightly acidic
- that contain moisture

TCS foods have nutrients and moisture, bacteria need to grow. Time is an important part of bacterial growth. When bacteria gets nutrients, moisture and warmth, their numbers can double every 20 minutes. Hence within 4hours the food will have enough bacteria that makes the food unhygienic to eat. The temperature between 41° F to 135° F is a danger zone that creates conditions for rapid growth of bacteria. Two most important ways of keeping the food safe is time and temperature controls.

Time Control

TCS foods that are ready –to- eat can be safely consumed in a 4 hours window. However, if they have not been under temperature control, the foods should be discarded after 4hours. Hot held and cold held foods can be served for four hours without temperature controls if they are discarded after the 4 hours limit.

Temperature control

Foods should be kept out of the danger zone either by freezing or refrigerating or by holding. Food is refrigerated or frozen until it is prepared for service. Ready-to-eat TCS dishes should be hot held at equal to or above 135 F or cold held at equal to or below 41 F.

Cooling foods

Foods should be cooled at two stages. First, the food should be cooled from 135° F to 70° F within two hours or less and second the foods should be cooled from 70° F to 40° F in four hours or less. Large batches of foods such as large pot of stew, should not be cooled in a large container as it does not allow the food to cool fast enough and keeps the food in the danger zone for too long. So, large batches of foods can be divide into small containers while cooling.

Heating Foods

When heating foods that should be hot held, the food should be heated to 165° F or higher. Foods should reach 165° F in 2hours or less. It is important to use appropriate cooking or re-thermalizing equipment such as microwave, stove or oven.

Here are the lists of some foods subject to time and temperature control for safety.

Meats	Poultry	Seafood
<ul style="list-style-type: none"> • Bacon (in raw form) • Beef (ground, roasts, steak) • Gravy • Ground meats • Hot dog • Lunch meat • Meat casseroles • Pork (ground, ham, roasts) • Processed meats • Sausage • Soups • Stews 	<ul style="list-style-type: none"> • Chicken (ground, roasted, barbequed, fried) • Chicken (nuggets, patties, strips) • Casseroles with chicken/turkey • Dressing • Gravy • Pre-cooked, processed products • Turkey (ground, roast) • Soups • Stews 	<ul style="list-style-type: none"> • Fish • Salmon • Tuna <hr/> <p style="text-align: center;">Pasta</p> <ul style="list-style-type: none"> ○ Noodles ○ Rice cooked
Dairy foods	Eggs	Fruits and Vegetables
<ul style="list-style-type: none"> • Whipped butter/whipped margarine • Cheese (mozzarella, cottage, cream cheese, Ricotta) • Cream (real) • Cream sauce, white sauce • Dairy whipped topping • Ice-cream • Milk 	<ul style="list-style-type: none"> • Egg casseroles, egg dishes • Deviled eggs • Fried eggs • hard (cooked eggs) • Omelets • Scrambled eggs • Bakery Foods • Cream pastries • Cream/custard pies and tarts • Pudding prepared from a mix or from scratch 	<ul style="list-style-type: none"> • Dry beans cooked (e.g. navy, refried, baked beans, etc.) • Potatoes (baked, boiled, mashed-fresh& instant, scalloped/au gratin-fresh & dehydrated) • Garlic in oil • Seed sprouts <hr/> <p style="text-align: center;">Other</p> <ul style="list-style-type: none"> • Salad dressing prepared from a mix

Resources

Alaska Food Handler. List of TCS Foods. 2016. Retrieved from <http://www.akfoodhandlers.com/Content.aspx?PageName=TCS>

Sandridge, S. 2016, October. State Food Safety. State Food Safety Resources. Time/ Temperature Control for Safety (TCS) Foods Poster. Retrieved from <https://www.statefoodsafety.com/Resources/article/category/Posters/article/time-temperature-control-for-safety-tcs-foods-poster>