

## Canning Is Cooking

A canned pear is a poached pear. The fish in a can of tuna has been filleted and steamed at the factory, and when you open a can of beans, you benefit from the timesaving fact that they have already been soaked and simmered. Although the primary goal of canning is preservation and safety, the big payoff for a harried cook adds up to a potful of saved time and effort.

## The Cooking Process

Before going into a can, ingredients are cleaned and sterilized. Minimally, vegetables and fruits are washed and trimmed; often they are blanched to kill surface bacteria, set color and remove excess moisture and air. Prepared foods are fully cooked before canning, but individual ingredients, like beans, whole tomatoes and peaches are cooked right in the can.

The amount of heating (in both temperature and time) to safely preserve food in a can varies according to the type of food being cooked. Ingredients with naturally high-acid contents (pH lower than 4.6), including most fruit, most condiments and a few vegetables, such as tomatoes, do not support the growth of dangerous bacteria, so they can be processed minimally. Low-acid foods (pH higher than 4.6) like most vegetables and all proteins must be canned at high temperatures (250 °F) for at least 3 minutes, most often 12 minutes or more.

After cooking, the cans are cooled in cold water baths. As the contents cool any steam that was created inside the can precipitates back into liquid, leaving behind a vacuum, which ensures the contents won't spoil.

Because canning is a preservation process, there are no preservatives used. All that is added is water, syrup, seasoned liquid or oil to flavor the food and fill up the can to minimize the airspace, ensuring a tight vacuum.

## The Benefits of Canning

**Quality:** The majority of canned products are cooked within a day or two of harvest, when quality and nutritional contents are highest.

**Freshness:** Most canning facilities are located within a few miles of the point of harvest. Fruit and vegetable canneries can be seen from the fields, and seafood canneries are just minutes away from the docks. Prepared foods, like soups, stews and meats are canned in the same facilities where they are cooked.

**Nutrition:** Some canned foods have a higher level of nutrients than their fresh counterparts. Canned pumpkin contains 20 times the Vitamin A as fresh pumpkin, canned tomatoes have a higher concentration of lycopene and canned fish contains more calcium.

**Convenience:** Because canned food is already cooked there is no need to cook it in a recipe. Canned tomatoes do not need hours of simmering to become a sauce; canned beans are ready to eat as soon as they are heated through; canned fruit is fully prepared to be transformed into a tart, a sorbet or a flavorful sauce.

## The Challenges

If food is not heated sufficiently, micro-organisms could survive the canning process and grow inside the can. If the food is cooked too much, its sensory qualities will suffer: Loss of color and loss of flavor, or worse, burnt characteristics may develop.

The can must be properly sealed to ensure that a good vacuum develops, and pressure in the canner must be equalized to the pressure inside the can to keep the can from exploding as it heats and cools. The process is controlled by a retort canner, managing the heating, cooling and air pressure in the canning environment with an extensive piping system for steam, water and compressed air.

Once canned food is produced, storage and transport mishaps can damage a can's seams, which can allow contaminants to enter and spoil the contents. A broken seam is evidenced by signs of leakage, and is likely if a can is dented badly. The presence of rust on the outside of a can could indicate a weakened seam, but usually is just unsightly.

## The Opportunities

Because canning is nothing more than cooking in a can, the potential for adding culinary know-how to canned food is limited only by our imaginations. For example:

- Canned fruit can be poached with citrus, vanilla or harvest spices
- Mushrooms can be simmered with garlic and herbs
- Tomatoes can be processed with chilies and peppers, Italian herbs or North African spices
- Potatoes can be canned in a broth flavored with bacon and caramelized onions
- Tuna can be flavored with lemon, celery or dill
- Canned soups and stews offer flavors from around the globe, featuring diverse recipes and ingredients