

Acidifying Pressure Canned Tomatoes

“My recipe for raw packed tomatoes with no added liquid provides both boiling water canning and pressure canning options. Do I really need to acidify the tomatoes if I use the pressure canning option?”

The short answer to the question is “Yes, to ensure safety, acid in the form of lemon juice, citric acid or vinegar must be added to tomatoes that will be processed by a pressure canning option”. The USDA researchers who developed the pressure canning process for raw packed tomatoes with no added liquid based the process on killing molds, yeasts and spoilage organisms in acidified tomatoes. They designed the boiling water bath canning process to kill the same organisms. They did not base the pressure canning process option on inactivating spores of *Clostridium botulinum* because they are counting on the low pH to prevent *C. botulinum* growth. If they had developed a pressure canning process for unacidified tomatoes that targeted *C. botulinum* spores, it would have been for a much longer time.

For raw packed tomatoes with no added liquid, two options are provided. The boiling waterbath canning process option is 90 minutes for pints or quarts at altitudes of up to 1000 feet; the pressure canning option is 25 minutes at 10 pounds pressure in a weighted gauge canner at altitudes of up to 1000 feet. Both processes are based on having sufficient acidity and a pH less than 4.6 (ensured by adding lemon juice or citric acid) and are equivalent to each other. For this recipe, adding lemon juice is as necessary for pressure canning tomatoes as it is for boiling water canning them.

Where no boiling water canning alternative is provided and no acid is added, pressure canning recipes for tomato products have been designed to kill *C. botulinum* spores.

When the USDA makes recommendations, they must take into account several variables that will occur when people can. Not everyone will follow the recipe exactly, not everyone will operate the canner perfectly, not everyone lives at the same altitude where water will boil at 212°F, not all crop varieties have the same amount of acid or starch content. The researchers make canning recommendations based on data from a tested, specific recipe (a specific amount of liquid, a specific amount of ingredient, a specific pH. Among other things, they consider how heat transfers through the product, how acidic the product is, etc. All those factors are taken into account to determine one ultimate question: Is the recipe safe enough for everyone in the United States can using this recommendation? Acid in tomatoes provides a safeguard that puts everyone across the US on a more even playing field regardless of geography, elevation, tomato variety or local growing conditions. *C. botulinum* spores do not germinate in acidic environments. Citric acid, bottled lemon juice, or vinegar added in the correct amounts will ensure that whether tomatoes are boiling water bath canned or pressure canned, the *C. botulinum* spores will not germinate when a current recipe is used and the jars are

processed properly. Since botulism is potentially fatal, Extension Agents are serious about strictly adhering to up-to-date recipes and using current processing methods. Extension won't recommend shortcuts or deviations from USDA tested recommendations because the risk to consumers is too great.