



Acidifying Canned Products for Safety

When canning food, the acidity of a food product is a critical factor that determines the safety and quality of the product.

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The concentration of acids naturally present in food varies from one food to another. Fruits such as apples, lemons, and grapes are much higher in natural acids than vegetables such as green beans or cucumbers. The acidity level of a food can be changed by the addition of ingredients such as lemon juice, vinegar, or citric acid. Natural and added acids help food to resist microbial growth and enzyme changes that affect color changes during preparation, processing, and storage. Ingredients can be added to foods to increase the acidity level of a product making it safe for boiling water bath or atmospheric

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steam processing. However, **never** change the amount of acid, dilute with water, or substitute acid sources unless the recipe specifically allows you to do so. This is especially important when canning low acid foods and tomatoes.

Vinegar is naturally obtained by sequential fermentation of sugar to alcohol and then to acetic acid. Cider vinegar is derived from apple juice while white vinegar is made from pure grain alcohol. For home food preservation purposes, use vinegars that are labeled as 5 percent acidity (50 grain) since they produce consistent results. White vinegar is usually preferred when light color is desirable, as is the case with fruits and cauliflower. Do not use homemade vinegar or vinegar of unknown acidity in pickling. Do not dilute the vinegar unless the recipe specifies this since you will be diluting the preservative effect. If a less sour product is preferred, add sugar rather than decrease the vinegar. Vinegar is most frequently used to make pickles and salsa. It may be used to acidify tomatoes for canning at the rate of $\frac{1}{4}$ cup per quart of tomatoes; at this concentration you may find it affects the flavor.

Lemon juice is another natural acidulent commonly used in home food preservation. To assure safe acidity in whole, crushed, or juiced tomatoes, add 2 tablespoons of bottled lemon juice per quart of tomatoes or 1 tablespoon per pint. **Only use bottled lemon juice, as the acidity level of the bottled juice is constant**, whereas the acidity of one lemon may vary from another. An alternative to lemon juice for acidifying tomatoes is citric acid. Some salsa recipes use lemon juice instead of vinegar. Bottled lime juice (not key lime juice) may be substituted for lemon juice in salsa recipes.

Citric acid is usually sold as a white crystalline powder. It can safely be used to acidify foods if used correctly. To acidify canned tomatoes, citric acid may be used instead of lemon juice. Add $\frac{1}{2}$ teaspoon per quart or $\frac{1}{4}$ teaspoon per pint. **Do not confuse citric acid with ascorbic acid.** They cannot be substituted for each other. Ascorbic acid is a color preserver. Citric acid is often available in small jars where canning supplies are sold.