



FOOD SAFETY:

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Crisp Pickles

Pickles become soft as the pectin in them softens. Pectin can become soft by microbial spoilage, heat or improper handling. Once a pickle becomes soft it cannot be made firm again.

The most important aspects of keeping pickles crisp are to start with:

- 1) Fresh, just-picked cucumbers.
- 2) Cucumbers intended for pickling and no more than two inches in diameter.
- 3) Cucumbers with blossom end removed. The blossom harbors microbes that can cause softening.
- 4) Up-to-date, tested recipe.

Use of low-temperature pasteurization

Cucumber pickles may be processed for 30 minutes at 180-185 degrees F. Check with a thermometer to be certain that the water temperature remains above 180 during the entire 30 minutes. Keep the temperature below 185 to avoid breaking down the pectin, which will cause softening of the pickle.

Use of firming agents

Calcium and aluminum salts improve pickle firmness by combining with pectin to make the cucumber more resistant to softening. Alum (aluminum potassium sulfate) has been shown to cause a slight increase in pH and a significant increase in firmness when used at levels up to 1/4 teaspoon per pint. Addition of greater than 1/4 teaspoon alum per pint decreased firmness (research done by Marilyn Swanson, Extension Food and Nutrition Specialist, University of Idaho).

Pickling lime (calcium hydroxide) may be used in a lime-water solution for soaking fresh cucumbers 12-24 hours before pickling with vinegar, sugar and spices. The lime-water solution must be drained after the soak and the cucumbers then washed at least three times in fresh water to ensure safe pickles. This washing is very important because lime is very alkaline and it is essential to remove the lime to be sure the pickle is safe acidified. Several recipes which use a lime soak are included in the USDA food preservation guide.

Lime used in pickling must be food-grade. Several food preservation companies now offer food-grade pickling lime. Lime sold in lumberyards is industrial grade and may contain contaminants.

Water which contains calcium will help produce a firm pickle. Grape leaves are sometimes added to pickle products. The tannins in grape leaves keep pickles firm by combining with the protein in the cell wall of the cucumbers.