

Pickle Fact Sheet

Four Basic Pickle Products

1. BRINED OR FERMENTED PICKLES require three weeks or longer to cure. Cucumbers change from a bright green to an olive or yellow green. The interior becomes uniformly translucent.

Salt is added at the beginning of the process to interfere with the growth of microorganisms other than the lactic acid bacteria. Vinegar is also used to create an acid environment which discourages growth of microorganisms other than the lactic acid bacteria. The salt in the original brine is quite concentrated and draws liquid out of the cucumbers. The liquid drawn from the cucumbers contains carbohydrates which serve as food for this bacteria.

As the lactic acid bacteria multiply, they produce lactic acid which makes brine even more acidic. This acid reacts with the chlorophyll of the cucumbers causing it to become an olive green.

A scum usually forms on the surface of the brine as yeast and mold grow. It is important to keep their population down by removing the scum daily.

2. FRESH PACK OR QUICK PROCESS PICKLES are made by combining ingredients (with or without heating) and water bathing right away. Be sure recipe calls for at least as much vinegar (4-6 percent acid) as water. There are some exceptions to this rule: a very well-tested USDA recipe (HG 92) uses salt in a high enough proportion that the salt also helps to preserve the cucumbers. Use only reliable current recipes and follow recipe carefully.
3. FRUIT PICKLES are made of whole fruits simmered in a spicy, sweet-sour syrup.
4. RELISHES are made from chopped fruits or vegetables with seasonings.

Ingredients Make a Difference

1. Vegetables or Fruits

- o Select tender vegetables and firm fruits that are free from blemishes.
- o For best results, use cucumbers within 24 hours of picking.
- o Use a variety of cucumbers grown especially for pickling. Good quality pickles are not made from immature "slicing" cucumbers.
- o Use light skinned cucumbers that are attractively warty, not more than 2 inches in diameter and young enough so the seeds have not matured.



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- o Commercially waxed cucumbers should not be used for fermented pickles or whole pickles. Pickling liquid cannot penetrate into the waxed cucumbers.
- o Wash all vegetables and fruits thoroughly in cold water. Do not use if moldy.
- o Remove blossom ends of cucumbers. They may contain enzymes which cause softening in pickles.

2. Salt

Recommended

PICKLING AND CANNING SALT are pure, granulated salts containing no anti-caking agents, and no iodine. They are hard to find. In moist climates, problems with caking of the salt leads to consumer dissatisfaction, thus reducing its availability.

NONIODIZED TABLE SALT can be used. It can cause a cloudy brine, but this does not harm the pickles.

KOSHER SALT is a flaked salt. It is often hard to find as well as more expensive. It contains no iodine or anti-caking agents which makes it great for pickling.

One cup of flaked salt weighs less than one cup of granulated salt. Therefore, a larger volume must be used when flaked salt is substituted. About 1 1/2 cups of flaked salt are equivalent to 1 cup of granulated salt. For a more accurate measurement 10.2 ounces of flaked salt should be weighed for each cup of granulated salt needed.

Not Recommended

IODIZED TABLE SALT is not recommended because the iodine sometimes reacts with the pickles to turn them dark. It also contains an anti-caking agent which can cause a cloudy brine.

SEA SALT is essentially iodized table salt with a different name for sales purposes. Salt labeled "sea salt" is not suitable for pickling purposes for the same reason iodized table salt is not. Other mineral impurities may also cause pickle discoloration.

ICE CREAM SALT or ROCK SALT might contain impurities so it is not recommended.

SOUR SALT is a small tablet containing citric acid and salt that is used in the commercial canning of sea food. At retail level, it is marketed as a water softener. The salt in the tablet removes ions of calcium and magnesium, while the citric acid renders the iron in the water unavailable. This type of salt, due to its tablet form and mixture, is not suitable for pickling purposes.

SALT SUBSTITUTES cannot be used to make satisfactory pickle products. Potassium chloride is being used as a salt substitute for those on a salt-restricted diet. The pickles will be crisp and crunchy, but will not have the characteristic salty pickled taste. Potassium has a bitter taste.

3. Vinegar

- o Use vinegar with 4 to 6 percent acidity (40 to 60 grain).
- o White distilled vinegar has a sharp pungent acid taste and is desirable when light color is important such as pickled onions, cauliflowers and pears.
- o Cider vinegar has a milder flavor but may discolor some pickle products.
- o Do not use homemade vinegar or brands with an unknown acidity. The percent acidity must be known for successful pickling.
- o If a less sour product is desired, add sugar to the pickling solution rather than reducing the amount of vinegar. Vinegar is important for safety reasons.

4. Spices

- o Use whole spices. Powdered spices may cause the product to darken and become cloudy.
- o Use fresh spices. Last year's supply will have lost much flavor.
- o Pick dill as soon as the flowers begin to open.
- o Dill seed can be substituted for fresh dill, but may not have as good flavor. (3 dill heads = 1 Tablespoon seeds = 1 to 3 drops dill oil).

5. Garlic

- o Use fresh or mature garlic. Immature or old garlic turns pink or purple as anthocyanins (coloring pigment) react to acid.

6. Water

- o Moderately soft water makes the best brine for pickles. Hard water may cause cloudiness and iron and sulfur may cause off-colors.
- o If only hard water is available, boil and let set for 24 hours and skim off scum. Water should be used from the top of the container without disturbing any sediment on the bottom.

7. Sugar

- o Either white or brown may be used.
- o Brown sugar may give a darker color to the brine.
- o Light honey may be used in place of sugar.

8. Crispers

- o Use good quality ingredients and up-to-date procedures.
- o Lime and alum are no longer recommended in the preparation of pickles.
- o Lime, called slake lime, lime hydrate, or hydrated lime, is really calcium hydroxide. If it is used, it should be food grade.

PICKLE TIP: **DO NOT USE ZINC, COPPER, BRASS, GALVANIZED METAL, OR IRON UTENSILS.** These metals may react with acids or salts and cause undesirable color changes in the pickles or form undesirable compounds.

Processing Pickles

Pickle products require heat treatment to destroy organisms that cause spoilage and to inactivate enzymes that may affect flavor, color and texture.

Processing is recommended for all pickle products using the boiling water bath method. Quick pickles are processed for at least 5 minutes. Fermented cucumbers and fresh pack dills are processed differently from the usual boiling water bath methods. When processing these pickles, start counting the processing time as soon as the jars are placed in the boiling water. These pickles are usually processed for at least 15 minutes. This procedure prevents the development of a cooked flavor and loss of crispness. Follow processing times given with the recipe. DO NOT PROCESS FERMENTED PICKLES BEFORE THEY DEVELOP AN ACIDIC TASTE.

Storing Pickles

- Cool** Extreme fluctuation of temperature can cause a breakdown of the texture. Pickles stored at warm temperatures could start fermenting again and cause the jars to break.
- Dark** Light often causes products to fade and become less appetizing. This does not necessarily produce spoilage.
- Dry** Continuous moisture may cause closures to rust and eventually produce spoilage.

REMOVE jar rings. If liquid is lost during processing and rings are not removed, it will cause corrosion and the rings will be hard to remove. This is especially true for pickles due to their high acid and salt content.

AFTER OPENING: Opened pickle jars should be stored in the refrigerator with the pickling liquid covering the fruits or vegetables.

Adapted from material by Marilyn Swanson, University of Idaho and Olga Fuste, Extension Agent, Pierce County, Washington. Revised by Nellie Oehler, Home Economist, with Carolyn Raab, Foods and Nutrition Specialist, Oregon State University.