

## Nitrate/Nitrite Curing Agents

Prague powder #1 is a mixture of 1 part sodium nitrite and 16 parts salt. You normally use 1 level teaspoon of cure for 5 lb. of meat. Used at any time meat is not immediately put into freezer or refrigerator, such as smoking, air-drying, dehumidifying, etc. This is similar to and sometimes called Curing Salt.

Prague powder #2 is a mixture of 1 part sodium nitrite, .64 parts sodium nitrate and 16 parts salt. You normally use 1 level teaspoon of cure for 5 lb. of meat. mainly used for products that will be air cured for long time like: Country Ham, salami, pepperoni, and other dry sausages.

Instacure 1 is a mixture of 1 oz of Sodium Nitrite (6.25 %) to 1 lb of salt. Used at any time meat is not immediately put into freezer or refrigerator, Such as smoking, air- drying, dehumidifying, etc.

Instacure 2 is a mixture of 1 oz of Sodium Nitrite (6.25 %) along with .64 oz of Sodium Nitrate (4 %) to 1 lb of salt. mainly used for products that will be air cured for long time like: Country Ham, salami, pepperoni, and other dry sausages.

Note: The Curing Salts above contain FDA an approved red coloring agent that gives them a slight pink color eliminating any possible confusion with common salt those listed below which do not have the red coloring agent - so be especially careful when using and storing these products to eliminate the possibility of poisoning your family!

Morton's Tender Quick is a mixture of salt, sodium nitrite, sodium nitrate and sugar. Exact proportions could not be obtained. You normally use 1-1/2 teaspoons of cure for 1 lb. of meat.

Morton's Sugar Cure (Plain) is used for dry or sweet pickle curing of meat, poultry, game, salmon, shad and sablefish. It is primarily used for dry curing hams and bacon. It contains salt, sugar, propylene glycol, sodium nitrate and sodium nitrite, a blend of natural spices and dextrose (corn sugar). Morton Sugar Cure (Plain) mix can be used interchangeably with Morton Tender Quick mix.

Morton Smoke Flavored Sugar Cure – is used especially for dry curing large cuts of meat like hams or bacon. It contains salt, sugar, sodium nitrate, propylene glycol, caramel color, natural hickory smoke flavor, a blend of natural spices and dextrose (corn sugar). The cure reaction takes longer with Morton Smoke Flavored Sugar Cure mix than with plain Morton Sugar Cure mix, so the smoke flavored product should be used only for dry curing and not for making a brine (pickle) solution.

Salt Peter typically refers to the chemical compound potassium nitrate, though it may also refer to sodium nitrate. It is used in gunpowder, firecrackers, ice cream, toothpaste and other food products as a curing agent.

## Common Curing Salts

Kosher salt also sold as rock salt, is a type of coarse salt which is usually made without additives. Kosher salt has a milder flavor and the flaky crystalline structure of the salt helps it adhere to a variety of surfaces from fish to margarita glasses.

Canning salt is a particular variety of salt that is used in canning. Canning salt is a fine-grained salt and is iodine-free. It also does not have the anti-caking ingredients used in regular table salt. The lack of additives means the canning salt will not turn vegetables — particularly pickles — a dark color, nor will it make their liquid cloudy. Pickles made with table salt would be perfectly safe to eat — they just wouldn't look very pretty. Canning salt, on the other hand, produces a clear brine that is suitable for pickling.

Sea salt is formed from the natural evaporation of ocean water, generally in man-made pools near a protected shoreline. Sea salt is 98% sodium chloride, compared to table salt's 99.9% purity. The remaining 2 percent can be trace minerals such as iron, magnesium, sulfur or iodine. Unlike table salt, which is mined from land-based sources, natural sea salt does not contain added sugar, anti-caking ingredients or potassium iodide. Sea salt is also considered Kosher, which means it has been approved by rabbis for use by observant Jews.

Citric salt is actually an acid, not salt as cooks conventionally think of it. It is an acidic substance commonly found in citrus fruits which is added to foods to make them more tart and sour tasting. It may also be labeled as sour salt or citric acid.

## Products Used for adding Tang to Sausages

That mouth watering tang you get in aged sausages like salamis and pepperonis is due to a lactic acid build up during the aging process. There are several ways to accomplish this by using the products listed below:

Starter cultures are freeze dried and add lactic acid to the sausages which gives you that tang and mouth watering flavor in sausages like pepperoni and salami. Lactic acid also helps to prevent spoilage in you sausages. Using starter cultures is no more complicated than adding yeast to bread yet it has been made to sound like rocket science!

When adding the culture to meat, it is important to have spices dispersed so the salt and nitrite do not kill bacteria. The cultures need some sugar (dextrose or sucrose) to grow and produce acid.

The more sugar that is added, the lower the pH obtained. Temperature and percent humidity factor in to the growth as well. The longer meat products are kept at the idea internal temperature, the more cultures grow and the lower pH. Ideally the ph of your raw meat mix should be around 6.5 to 7.0.

This is the only way to get that old world mouth watering tang! Other methods try to duplicate the by lowering the pH of the product but fall short. They all have that mass produced artificial flavor but we've come to accept poor quality as in exchange for lower prices.

The cultures are sold in small foil packages just like yeast and you store them in the freezer. You only use 1/8 teaspoon dissolved in water for every five pounds of meat and you'll get that allusive mouthwatering tang in your sausages! I use Bactoferm™ F-RM-52 and Bactoferm™ LHP which go for about \$15 a package and will do 230 pounds of meat. They can be purchased here: <http://www.butcher-packer.com/>

Encapsulated citric acid effectively preserves sausage and meat products and is used a lot today in commercial products. Product quality is maintained while pH remains controlled. Company processes have eliminated the use of starter cultures and has increased production capacity with the shortening of cook cycles which makes the product cheaper to manufacture. Although it does produce a tang it is more of an acidic tang not quite the same thing.

Encapsulated citric acids are made by coating citric acid with maltodextrine, a hydrogenated vegetable oil, which by design will melt at 135° F. What this means is that the citric acid will not blend with the meat and lower the pH until the internal temperature of the sausages reach 135° F in the smoker preventing the meat from getting crumbly.

Encapsulated citric acid should be used when making summer sausage or snack sticks when the classic tang is desired due to reduced pH, but the long fermentation cycle is not. Encapsulated acids for sausage should be added just before stuffing and mixed into the meat. Do not grind after adding the capsules.

Fermento is another product used to produce a tangy taste in normally fermented sausages. The recommended level to start with is 3%, (about 1 oz. per lb. of meat) add up to 6% to produce a more tangy taste, but do not exceed 6% or the sausage will become mushy. This product does not require refrigeration.

Fermento is used to eliminate the curing times necessary for the fermentation process to take place. When using starter cultures you may have to wait up to two days for the culture to create enough lactic acid to lower the pH to sufficient levels where with Fermento you can start smoking right away. Fermento is suggested for products such as; Venison Summer Sausage, Cervelat, Goetburg, and any other Summer Sausage. The usage is usually about 6 oz of Fermento per 10 lbs of meat

Buttermilk Solids - Any sausage recipes using "Fermento" can be made by either using dry buttermilk solids as a replacement, or possibly liquid buttermilk to replace the liquid portion of the sausage recipe. and in my humble opinion works equally as well as Fermento because buttermilk solids produce lactic acid just like the starter cultures do, so it's a more natural taste.

## Creating Shelf Stable Meat Products

Shelf stable products are products that do not require refrigeration. This may be something you may want to strive for with sausages such as snack sticks, summer sausages and Slim Jims. Once the products are stable just drop them into a vacuum sealer bag, suck out the air and you've got a package you can put in a cabinet or take anywhere with you similar to that of your local grocery store. In order to be shelf stable sausages must achieve the following:

a pH of less than 5.0; or a Water activity of less than 0.91

or

a pH of less than 5.2 and a water activity of less than 0.95

\* pH is simply a measure of the amount of acid in a product.

\*\* Water activity is the measure of relative humidity expressed as a decimal.

ENjoy!