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Dry Milk

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Types of Dry Milk

Nonfat Dry Milk

This is pasteurized skim milk reduced to a powdered concentrate. It can be found in two forms, regular and instant. They are both made from milk in a spray-drying process, but the instant variety has been given further processing to make it more easily soluble in water than regular dry milk. Both types have the same nutrient composition. The regular variety is more compact and requires less storage space than the instantized variety, but it is more difficult to reconstitute. The most easily found variety is the instant, available in nearly any grocery store. The regular variety has to be sought out from baking and restaurant suppliers and storage food dealers.

It takes about 3 tablespoons of instant nonfat dry milk added to 8 ozs of water to make 1 cup of milk you can drink or cook with just like fresh milk,

albeit with a considerable flavor difference. Combine the dry milk with water at least several hours before you plan to use it to give it time to dissolve fully and to develop a fresher flavor. Shaking the fluid milk vigorously will incorporate air and will also help to improve flavor. I don't care for the stuff to drink, but instead add the powder to baked goods, gravies, smoothies, hot cereals, casseroles and meat loaf as a nutrition booster. It can also be used to make yogurt, cheese and most any cultured dairy product that does not require a high fat content.

Flavored Nonfat Dry Milk

This may be found packaged in a variety of forms from a low calorie diet drink (artificially sweetened) to the other end of the scale, as cocoa mix or malted milk. The key ingredient is the dry milk so buy and store these products accordingly.

Dry Whole Milk

This dry milk has a higher fat content and therefore a shorter shelf life than nonfat. Other than that, it can be used in exactly the same way. Dry whole milk is difficult to find, but can sometimes be found where camping and outback supplies are sold.

Dry Buttermilk

Dry buttermilk is for use in recipes calling for buttermilk. Since it has a slightly higher fat content than nonfat dry milk, it generally does not keep as long.

Buying Dry Milk Products

- Be sure the dry milk you are buying has been fortified with vitamins A and D. All of the nonfat dry milks I've seen come fortified with these two vitamins. The dry buttermilk does not come this way, at least the SACO brand does not. I don't know if the flavored mixes and the dry whole milk do or not.
- There should be no artificial colors or flavors. I believe it is illegal to add preservatives to any dry milk sold in the U.S. so a claim of "no preservatives" on the label is of no consequence. Other nations may be different, however.

"Extra Grade" on the label indicates the manufacturer has held to higher processing and quality standards and the milk is somewhat lower in fat, moisture and bacterial content, is more soluble, and has fewer scorched

particles.

There are still some manufacturers of dry milk that sell ordinary Grade A product, but they are becoming fewer. Every brand of instant powdered milk in my local grocery store is the "Extra Grade", even the generic store brand. This, too, may vary outside of the States.

- Try to buy your dried milk in containers of a size that makes sense for the level of consumption in the household. Once it is opened, powdered milk has a short shelf life before undesirable changes in flavor and nutrient content occurs. If you buy large packages and do not use much at one time, consider breaking it down and repackaging into smaller containers at the time of purchase.
- As with any storage food you buy, try to deal only with reputable dealers. It is particularly important to do this with dry milk because of its short shelf life and sensitivity to storage conditions. Check expiration dates, then date and rotate packages.

Storing of Dry Milks

Dry milk products are especially sensitive to storage conditions, particularly temperature and light. Vitamins A and D are photo sensitive and will break down rapidly if exposed to light.

The area where your dry milk is stored should be kept as cool as possible. If it is possible to do so, air-conditioning or even refrigeration can greatly extend the nutrient shelf life.

If the storage container is transparent or translucent then it should be put into a second container opaque to light or stored in a dark room.

Dry milk will absorb moisture and odors from the air so storage containers should be impervious to both air and moisture. The dryer it can be kept, the better it will keep. Oxygen also speeds decomposition. Powdered milk canned with nitrogen or carbon dioxide to replace air (which contains oxygen) will keep longer than powdered milk exposed to air. Vacuum canning also decreases the available oxygen.

If the dry milk purchased was not packaged for long term storage then it should be repackaged right away.

I purchase the instant variety at my local grocery and repack it when I get it home. I've seen a number of methods used for this and any of them should work.

The method I now use is to pour the powder into clean, dry half-gallon canning jars. Once the jars are filled I add a small desiccant pack and seal. They are dated and stored in the ubiquitous cool, dark place. They must be guarded against breakage, but they offer the advantage of not holding odors, thus allowing for reuse after suitable cleaning. Since they are as transparent the contents must be protected against light. Vacuum sealing and then storing in a dark place may be the best method. Larger jars of 1 gallon size could be used and then re-vacuum sealed after each use. An O₂ absorber would take care of any remaining oxygen and would, itself, last longer when used in conjunction with the vacuum sealer. Being glass, the jar can be reused as well as the lid and ring if they're properly cleaned.

Clean, sound plastic one and two liter soda bottles can also be used, but probably should be used just once since the plastic is somewhat permeable and will hold odors.

If you have access to a can sealer, #10 cans make wonderful storage containers for dry milk, particularly if used in conjunction with O₂ absorbers.

Another method I've seen used is to remove the paper envelopes of milk powder from the cardboard box they come from the grocery store in and to put them in dated plastic bags. These bags are not sealed. The unsealed bags are then placed in a larger, air tight, opaque container. I've heard of plastic buckets, fifty cal and 20 mm ammo cans being used for this purpose. A healthy quantity of desiccant was also placed in the container. This would be another area where O₂ absorption packets should serve well. It's important to remember the containers should be clean and odor-free.

Please see section IV Specific Equipment Questions for information concerning the proper use of desiccants, compressed gasses, dry ice and oxygen absorbers.

SACO Foods

From: SacoFoods@aol.com (Amy Thompson)
To: Dunross@dkeep.com (Alan Hagan)

Subj: SACO Mix'n Drink Instant Pure Skim Milk

Date: May 9, 1996

Dear Mr. Hagan:

Thank you for your e-mail today and for your interest in SACO Mix'n Drink Pure Skim Milk.

Our Mix'n Drink will keep its nutrition value for up to about two years if kept cool and dry, and the only vitamins that actually decrease over time are the vitamins A and D. These are not shelf-stable vitamins and are sensitive to heat and light. A good rule of thumb to follow is that the vitamins A and D will dissipate at a rate of about 20% every year if stored properly. The less heat and moisture the milk is exposed to, the better the vitamins will keep. A freezer could extend the shelf life, as long as the powder does not get moisture in it. If you had to put a time limit on the Mix'n Drink, for rotation purposes, I would date it at two years after the date of purchase.

After opening a package of dry milk, transfer the powder to a tightly covered glass or metal container (dry milk can pick up odors from plastic containers) and keep it in the refrigerator. Unsealed nonfat dry milk keeps for a few months; dry whole milk for a few weeks.

From: SacoFoods@aol.com (Amy Thompson)

To: Dunross@dkeep.com (Alan Hagan)

Subj: SACO Mix'n Drink Instant Pure Skim Milk

Date: May 21, 1996

Dear Mr. Hagan:

Since vitamins A and D are heat and light sensitive, I would say that your 1 1/2 year shelf life is very reasonable. If you are trying to determine when the nutritional value has been affected more than 40%, as you previously indicated, you should be pretty safe with that time element, as long as it is not exposed to extreme heat.

[Eds note: We were discussing the higher average temperatures found in Florida and other hot climates and the effect that it would have on their dry milk's nutrient content]

Canned milk is covered in the [next section](#), under caned goods.

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