



## Foods for Long Term Storage & Things to Consider

Important: Oxygen Absorbers can greatly increase the storage times and fresh quality of shelf-stable food, but they are not a substitute for refrigeration. Food that normally requires refrigeration needs to be frozen for long-term storage.

### Food For Long-Term Storage (Dry, Shelf Stable Foods)

When creating a long-term food storage plan, it is best to imagine using it. If tonight you needed to use your food supply to feed your family, what would be easy to fix? What would they ask for? It wouldn't make much sense to fill 5 gallon buckets with rice if your family hates rice, or save flour if you don't know what to do with it. There are plenty of great food storage choices, so pick the ones that are best for you and your family. Remember to include spices and treats too.

Oxygen Absorbers must only be used with food that has a low moisture content. (under 15%) If a food product normally requires refrigeration after opening then that means it is susceptible to anaerobic bacteria, and needs to be canned or frozen to be stored long-term.

Here is a list of food products that are great for use with oxygen absorbers:

Rice	Coconut	Powdered milk, juice
Beans	Spices	Pet food
Pasta	Herbs	Seeds
Dehydrated fruit/veggies	Chips	Crackers
Potato flakes	Bread mixes*	Wheat berries
Nuts	Cake mixes*	Flour
Trail mix	Tortilla mix*	Dried corn
Cereal	Ramen noodles	Flax
Jerky	Dehydrated soups	Lentils
Oatmeal	Bouillon cubes	Chick peas
Vitamins	Medications	Corn meal
		Freeze-dried eggs
		Non dairy creamer

\*just add water version

You can often keep products in their original packages, but if you do, poke a couple holes in the packages so that the oxygen will be removed. Most products are packaged using gas flushing to reduce oxygen levels, but Oxygen Absorbers do a much better job.

Coffee beans will give off a gas. They CAN be stored long-term but if you use a Mylar bag you may see it puff up a little over time.

Salt, sugar, honey and cornstarch do not spoil and do not need Oxygen Absorbers. You may choose to add a desiccant to buffer the moisture level but it is not necessary. Iodized salt may become yellow over time but the color change is safe and will not effect the quality otherwise.

## **Long Term Food Storage Tips**

When storing food for emergencies, keep in mind the present likes and needs of your family. Plan to have variety in your meals and consider creating a weekly menu and store meal items together.

Plan meals and food items that do not require a lot of preparation.

Include spices, condiments, desserts and other pleasures. These are things you will really appreciate in an emergency.

Instead of using a 5 gallon bucket to store a large quantity of only one item, use the container to hold several smaller bags of that product or of different products. Smaller amounts are more convenient when it comes time to use them, and you won't need to unseal more than you need.

Rotate your food supply by using it and replacing it. Oxygen Absorbers with appropriate containers can keep food safe for decades, but it is a much better idea to keep a rotation going than to test the limits of your food storage system.

Do not forget about pet food. Coffee, vitamins and seeds to grow food are other items to remember.

Your food is well-protected and can be stored just about anywhere, but ideally, store food at least 6 inches off the ground in a cool, dark place.

Consider storing food in multiple places. If a disaster occurs then you may be prevented from reaching some places.

Think about other things you may need: cooking directions, equipment, utensils, water, can opener...

# Things to Consider When Choosing Your Oxygen Absorber & How to Store Food

## What Size/Strength Oxygen Absorber Should You Use

A gallon container holds 3785cc's of air. Because oxygen is 21% of air, that means 795cc's of oxygen are in a gallon. You would need a 800cc Oxygen Absorber to clear an **empty** gallon container of oxygen. If you were to fill the container with flour (which is about 50% air – see below) then there should be 400cc's of oxygen in the **filled** gallon container and it would take a 400cc oxygen absorber to absorb all the oxygen.

### *Things to Consider:*

1. A Mylar bag will form around food and the actual volume is often LESS than a gallon.
2. Oxygen Absorbers typically absorb **MORE** than they say they do (Pack Fresh oxygen absorbers absorb 180% to 300% of their rating). But if you are using a jar or storing pasta or another product with a lot of interstitial (unfilled interval spaces which hold air within the spaces) or embedded air, or some other circumstances, the 300cc may not completely deoxygenate the container and you may need a higher strength oxygen absorber.

## If Flour Is Dense Should You Use a Smaller Oxygen Absorber?

Flour is typically about 50% air just like dirt and many other powders. People tend to think food with small particles is “dense” and food with large particles is not, but particle size actually has nothing to do with air content. The 2 main factors are:

1. Degree of Agglomeration (the mass grouping or collection of)
2. Particle Size Distribution. That means how tightly the product is packed and if the particles are uniform in size or if there are large and small particles.

## Do You Have to Heat-Seal Ziplock Mylar Bags?

While ziplocks can help hold product in place, many people seem to assume they are meant to seal your food for storage. ALL Mylar bags must be heat-sealed.

## Should You Use Mylar Bags Textured for Vacuum Sealers?

This is irresponsible on the part of the manufacturers and retailers who take advantage of the fact that this sounds like a good idea. It actually is not. First, simply vacuum sealing is not enough for long-term storage and too much oxygen will be left behind.

Second, if you do use an Oxygen Absorber in one of these, vacuum sealing is not only unnecessary, it tends to keep oxygen in the bag longer by inhibiting circulation. These bags are mostly just a waste of money.

### **Should you Inject Nitrogen:**

There is a site that mentions injecting nitrogen in addition to using an Oxygen Absorber. The air we breathe is over 78% nitrogen, 21% oxygen and some trace amounts of other things. When the Oxygen Absorber removes the oxygen, what you are left with is already going to be over 99% nitrogen. Therefore, this is unnecessary.



# Directions For Long Term Food Storage

## How Long Can You Store Food This Way Using Oxygen Absorbers?

People always want to know, “how long will these methods protect my food?” The answer to that depends on the oxygen-barrier qualities of the container and the capacity of the Oxygen Absorber.

Removing oxygen is an amazing way to protect perishables. That is why important things like “The Declaration of Independence” are stored in an anoxic (oxygen-free) environment. If there is no oxygen, oxygen dependent organisms like mold, bugs or other infestations cannot exist. Oxygen is also extremely destructive itself through oxidation, the process that turns a freshly cut apple brown and iron into rust. These are the things that cause the most damage to food products.

### The Container

The only complete barriers to oxygen are glass and metal (thicker than 15 microns). All plastics will have an Oxygen Transmission Rate, (OTR) which is the amount of oxygen you can expect to penetrate the plastic over a period of time. Typical sandwich baggies for instance, have a very high OTR and are basically useless as an oxygen barrier but other plastics like PETE or HDPE have a very low OTR and can even be used for long-term food storage.

Mylar is a member of the polyester family which has been metalised to give it outstanding barrier properties. Mylar bags have extremely low OTRs, but the OTR can vary depending on the quality of the metalization. Most of the “mylar bags” sold online are not actually made of genuine Mylar, rather they are imported metalised bags. Pack Fresh Genuine Mylar bag sets will keep an oxygen-free environment for over 25 years.

Glass has an OTR of zero, so Mason jars make excellent containers. They can keep an oxygen free environment indefinitely.

### The Oxygen Absorber

Because oxygen will gradually trickle into just about any container, using a larger capacity Oxygen Absorber (that can continue to absorb incoming oxygen) will keep it from accumulating and lengthens the storage time. Oxygen Absorbers do not “expire” and will continue to absorb until they are full, even if many years have gone by.

What about light? All forms of energy such as light can cause molecular breakdown but light does not contaminate food, it just may have an effect on it's quality. Still, it is best to choose a storage area that is dark and cool. Most food will not be significantly effected by light damage but choosing a dark storage area or using Mylar bags is always the best idea.

Even though Oxygen Absorbers used with Mylar bags or mason jars can keep food protected for an astonishing period of time, it is a much better idea to rotate your food supply annually by actually using it.

If you have any questions contact Survival Supplies Australia on:

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