

# HOW TO USE YOUR FREEZE DRYER



## INTRODUCTION

While your freeze dryer is working, it will go through 3 processes:

1. The first is **FREEZING**
  - You can speed this part of the process up by freezing your food prior to putting it into the freeze dryer.
2. Once the food is frozen, it goes into the **DRY MODE**.
3. When the unit senses most of the water is out of the food, the unit then goes into **FINAL DRY**.

When Final Dry is finished, you will take your food out.



## HOW TO USE

- 1 To get started: Close the door, turn on freeze dryer, and press start. Ideally you will want to do this 30 minutes prior to loading to make sure the unit is cool before loading your product in the freeze dryer.
  1. Press the correct button for **liquid, non-liquid, pre-frozen, or not frozen**.
  2. Close drain valve.
- 2 If you have an oil pump, make certain you have clean oil in the pump and that it is filled to the 'Oil Fill Level' noted on the pump.
  1. The place where oil goes in is a red cap on top of the pump. Just unscrew it and pour in your oil. Do not pour oil into the black oil demister on top of the vacuum pump. A funnel can be used to pour the oil into your pump. It will reduce the mess.
  2. Vacuum pump oil is food grade mineral oil. You should not drink it. However, a small amount will not hurt anyone.
- 3 Vacuum pump should be plugged into the back of the freeze dryer, and the switch on the vacuum pump should be turned on ("O" is off, "I" is on).
- 4 Prepare food for freeze drying:
  1. Cut up food into medium slices or pieces. You can mix and match the food (i.e., can have different things on the trays).
  2. Place on trays
  3. It should normally not be higher than the sides of the trays and should normally **not** be stacked (single layer).
    - Peas, corn and herbs might be the exception



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4. Slide the trays into unit.

5. If you are putting in a runny liquid (soup, eggs, juice, etc.), it is best to put your liquid in a pitcher that is easy to pour out of. Then slide empty trays most of the way into the freeze dryer. Pour the liquid into the trays from the pitcher and gently slide the trays in the rest of the way.

**5** Once the food is in the freeze dryer, securely latch the door. Check again to make sure the drain valve is closed.

**6** Let the freeze dryer do its job. The process is automatic.

1. Typically, a batch will take 24 to 50 hours, depending on what is being freeze dried. There are a variety of factors that can cause batches to take longer, including:

- The amount of sugar in the food
- The cellular structure of the food
- The amount of food or the amount of water in the food
- The room temperature that the freeze dryer is placed in
- Thicker items take longer

**7** When a batch of food is finished the unit will beep to let you know it is done. The screen on the unit also indicates that the food is done.

**8** This is a good time to check the food to see if it needs more dry time.

1. Open your drain valve to release the vacuum pressure and open the door.

2. Find the thickest piece of food on the tray, break it in half and see if there is any ice at the core. You can also put it on your tongue. Your tongue can sense the ice better than your eyes can see it.

3. If it is not dry, add more dry time. Usually two to three hours is adequate. However, some things like blueberries and grapes may need a lot more time (they have a skin that water has a hard time getting out of). You can puncture the skins or cut the grapes in half to speed up the process.

**9** When you have decided that the food is dry, take your food out of the freeze dryer (if it's cold you might have to use oven mitts).

**10** Once the food is out of the freeze dryer, press **Defrost** and close the door. You can also press **No Defrost** and just leave your door open. The ice will then defrost on its own.



Some people are in a hurry to defrost. We have seen people damage their units with hair dryers. We suggest you just use the defrost setting on your freeze dryer. Please don't use hair dryers.

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## 11 Now it is time to package the food:

1. The best containers are cans and Mylar bags. A canning system can be expensive. Mylar bags are good because they have metal in the fabric and keep the light out.
  - a. Clear plastic allows both water and oxygen to go through the plastic. Food won't last long in a "seal a meal" bag.
  - b. Mason jars can be used, but they are heavy, breakable and expensive. If you have extra jars from your canning days, feel free to use them. But, once filled with food you should keep the jars in a dark location as the light will discolor the food.
  - c. Once you have placed your food in a container, place an adequate oxygen absorber in the container.
  - d. Then seal the container. The oxygen absorber will take all of the oxygen out of the bag.
    - Air contains oxygen, nitrogen, carbon dioxide and so on. Only the oxygen, which is about 20% of the air, is bad for your food.
2. To seal the bags, you can use a heat sealer. There are two that work well. One is a hand sealer and the other is an automatic sealer that has a small conveyor belt.
3. Also seal your leftover oxygen absorbers as they will go bad in a couple of minutes. You can feel the heat that comes from them as the oxygen oxidizes the iron in the bags.
  - This iron is safe. Oxygen absorbers are used to package many commercial foods.
4. If you purchase oxygen absorbers from someone other than Harvest Right, usually the smallest quantity is fifty (50). We sell them in bags of ten (10). Once you open a large bag of absorbers you can try to reseal the package with your sealer (set on a lower temperature than is needed to seal Mylar bags). Or, you can keep the oxygen absorbers fresh by putting them in a Mason jar with a tightly closed lid. Oxygen absorbers are not reuseable.
5. Be sure and change your oil before each new batch of food. If you are using filtered oil, make sure that no water gets into the pump. When allowed to sit for a while after filtering, the water and oil will separate. The oil will float on top of the water. Simply pour off the oil for reuse and discard the water.

## Have Fun!

