

Cooking Instruction of Solar Balloon Cooker

The solar balloon cooker is a portable, personal solar thermal cooking system. It is very effective in cooking a variety of foods in small quantities. Cooking a large amount of foods at one time is OK but may be slow and inefficient. Generally speaking, the volume of food is best if the black cooking liner can cover all the food in the black pan without a gap between the edge of the liner and the inside surface of the pan. It is OK to use a larger black pan to cook more food. But it will take longer time to get it done. Also, cooking times may vary depending on altitude and strength of the sun.

Please follow the Quick Start Guide to set up the solar balloon cooker before cooking.

1. Boiling water (Making Tea / Coffee)

Pour one cup of water in the black pan and put the pan in the small oven bag. Tighten the bag, and put it inside the Mylar sleeve under the balloon. Orient the solar balloon toward the sun until the concentrated bright sunlight is on the black pan inside the bag. The time needed to boil the water will depend on your location and the weather conditions. On a sunny day in Sacramento, it takes about 15 -20 minutes during mid-day to boil one cup of water. Boiling water means heating water to 200°F or higher. Many small bubbles will be seen at the bottom of the black pan. This looks different from boiling water on a stove top due to the heat source. But the water temperature is about the same.



Pour water into pan.



Pan in oven bag.



Package in sleeve.



Orient balloon to Sun.

2. Cooking Rice

Heat 1^{1/2} cup of water to about boiling. The quantity of water needed will depend on the type of rice and your preference. Take the black pan with hot water out of the Mylar sleeve. Add one cup of rice into the hot water. Use a fork or spoon to stir the rice so it distribute uniformly on the bottom of the black pan. Cover the rice with the black cooking liner. Put the black pan with rice back into the oven bag, and then put the package back into the Mylar sleeve under the balloon. Try to keep the black pan as level as possible; otherwise some rice may be without water. Check to see if the rice is ready after 20 – 30 minutes. Continue cooking until the rice is cooked. Take the cooking package out of the Mylar sleeve and enjoy the rice.



Rice in hot water.



Cover with liner.



Put in oven bag.



Rice cooked.

3. Cooking Meal Ready to Eat (MRE)

Similar to cooking rice but it will be ready sooner.

4. Cooking Pasta

Similar to cooking rice.

5. Cooking bacon

Put bacon in the black pan and cover it with the black cooking liner. Put the pan into the oven bag. Tighten the bag around the pan and place inside the Mylar sleeve under the balloon. Orient the solar balloon toward the sun until the concentrated bright sunlight is on the black pan. Some bacon gives out a lot of water, juice, and fat when heated. Pour out the liquid then continue cooking until the bacon is ready. Flip bacons as needed.

6. Fish

Similar to cooking bacon.

7. Hot dogs / sausages

Similar to cooking bacon, add two tea spoons of water if the hot dogs / sausages are dry. But if they are very wet, pour out the liquid then continue cooking until the hot dogs/sausages are done. Flip sausages as needed.

8. Cookies/Bread/Biscuit

Put cookie dough on the black pan and cover it with the black cooking liner. Put the pan into an oven bag. Tighten the bag around the pan and place inside the Mylar sleeve under the balloon. Then orient the solar balloon toward the sun until the concentrated bright sunlight is on the black pan. The dough may rise so allow ample space. Do not put too much cookie/bread/biscuit in at one time. Flip as needed. Do not overcook.



9. Cooking Eggs

Scrambled eggs: Heat 2 tsp. of butter or cooking oil in the black pan until hot. Crack eggs in a mixing bowl and scramble together with a fork. Add salt/pepper/soy sauce if you like. Pour egg into the black pan, cover it with the cooking liner, put the black pan back into the oven bag, put the whole package in the Mylar sleeve under the solar balloon and cook. Flip the eggs over one time and continue cooking until it is done.

Hard-boiled eggs: Place eggs in the black pan with a little water. Cover it with the cooking liner, put the black pan into a small oven bag, put the whole package in the Mylar sleeve under the solar balloon and cook.



Fry eggs: Heat 2 tsp. butter or cooking oil in the black pan until hot. Break one egg into the black pan. Cover egg with the black cooking liner, put the black pan into a small oven bag, put the whole package in the Mylar sleeve under the solar balloon and cook. Flip the egg over one time during cooking. **The solar balloon cooker is not very efficient in cooking fried eggs,** because the egg white is not a good sunlight absorption material.

10. Heating soup

Most soups can be heated like boiling water described above. For a thick soup with light color, such as clam chowder, cover the soup with the black cooking liner. **The solar balloon cooker is not very efficient in heating thick white soup,** because of its high consistency and low sunlight absorbance.

11. Water distilling

Similar to boiling water, put one cup of water in the black pan and put the pan in the small oven bag. Tighten the oven bag with enough air inside so that the bag swells upward at the center of the black pan. This will help the water on the inner surface of the oven bag flows down and accumulate at the bottom of the oven bag. Make sure the open of the oven bag is face up so the collected water will not leak out. Put the whole package inside the Mylar sleeve under the balloon. Orient the solar balloon toward the sun until the concentrated bright sunlight is on the black pan inside the bag. **The water distilling process is slow. We have a more sophisticated and efficient solar thermal system for water distilling.**