

## Issues With the Use of Solar Dryers

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**Annotation:** This article discusses the issues of identifying and classifying the most efficient options for a solar dryer, the study and analysis of different types of solar dryer appearances and performance processes.

**Keywords:** dryer, heater, research results, hot water, photovoltaic devices, solar devices, greenhouses, dryers, water purifiers, heaters.

In summer and autumn, fresh fruits (apples, apricots, grapes) are dried qualitatively. Fruits and vegetables can be dried in the following ways:

1. Drying of products directly in the open under the influence of total solar radiation.
2. Drying of products in special devices for artificial drying.
3. Drying products in special solar devices.

Studies show that drying fruit products in special solar devices has several advantages. These advantages include:

1. It takes less time to dry in solar devices. Let's look at this table as proof (Table). - The table shows the time spent on drying fruit in a solar dryer in Samarkand and in the open field.
2. The quality of products dried in solar devices is better than the quality of products dried in the open, that is, dried products contain more vitamin C, and the products dried are clean.

Solar dryers in the greenhouse rip were tested in the country in 1936 for drying cocoons and fruits. The drying process consists of the evaporation of wet fruit or material under the influence of solar energy falling through the glass. Up to 10 kg of fruit can be dried. Their inconvenience is that the container in which the fruit is placed is tilted.

In chamber dryers, the air is heated to a certain temperature in a device in the form of a hot box, and then the dried fruit is sent to containers in a special chamber [7]. Up to 100 kg of fruit is dried in a glass dryer in Samarkand during the day. The solar greenhouse built in Karshi can also be used for drying fruits and vegetables in summer and autumn.

### **Solar refrigerators.**

It is well known that the climatic conditions of the Central Asian republics are much hotter in the summer months, and during the day the temperature sometimes rises to the point of no return. It is necessary to use devices that allow the formation of cold. The use of such devices is especially important in reducing indoor air temperature in hot weather. It should be noted that it is now possible to build solar refrigerators that will work around the clock.

### **Use of solar energy in heating and cooling houses**

In the climate of Central Asia, summers are very hot and winters are cold. Therefore, it is necessary to cool the rooms in summer and heat them in winter. The use of solar energy in heating and cooling of buildings is important in the national economy. .Because a lot of fossil fuels are used to heat buildings. Using solar energy can save fossil fuels.

Different devices are used to heat and cool homes using solar energy. Let's look at the use of these devices in solar water heaters. A "hot box" type solar water heater, installed at an angle to the horizon on the sloping side of the roof of the house, serves to convert solar energy into heat. is absorbed in the boiler and begins to heat the water with the temperature flowing into the boiler. This water heats the rooms as it flows through the pipes installed on the ceiling and walls of the house. The temperature of the hot water in the water heater is the highest.

If it is not necessary to heat the room, the hot water will be collected in a tank-accumulator installed in the basement of the house. The collected hot water can be used day or night when the weather is cloudy. the rest of the fuel-powered device is activated.

In summer, the device is used for hot water supply during the day and for various other needs. At night, a thin layer of water is drained from the glass-covered surface of the device. As a result, the water cools as it evaporates and drops to a temperature. The cold water is collected in storage tanks. The cooled water is pumped to the cooling system. It is used for heating rooms in winter and cooling in summer.

Experiments show that heat can be extracted from the surface of the device throughout the year, which is equal to the amount of heat released when burning 400 kg of coal.

The above-mentioned systems of solar heating, hot water supply and air cooling can be used in kindergartens, schools and small buildings

### **Low temperature sun energy devices**

It is known that the efficiency of solar devices of the "hot box" type is 40-50%, and the useful heat energy from the surface during the day can reach up to 3000 kcal. When using (Freon, ammonia, ethyl alcohols), the initial pressure of the vapors formed when their temperature is raised to 15-20 atm. piston pumps can be actuated.

Such energy devices are called low-temperature solar energy devices because of the use of low-temperature solar devices ("hot box").

The principle device of one of the low-temperature solar energy devices is shown in Figure 20. The part of the sun's rays that passes into the "hot box" device 1 evaporates the working body. The vapors generated by the evaporation of the working fluid are collected in the steam collector 2 after passing through a special valve that operates unilaterally and does not reverse the steam. When the vapor pressure reaches 15-20 atm, it is sent to the steam turbine 3. As a result of the rotation of the shaft of the steam turbine, an alternating current generator 4 attached to it also starts. During the rotation of the steam turbine shaft, the steam works, cools and melts in the condenser. The pump pumps 6 liquids through the pipe back to the generator. The above process continues when the sun's rays fall on the surface of the "hot box" device. The overall efficiency of this type of device can reach 10-15%.

### **Conclusion.**

The light energy of the sun is converted into other types of energy, thermal energy.

The simplest device used to convert solar energy into heat energy is a "hot box" type of device.

Solar energy has a positive impact on the development of agricultural production.

These devices are:

- 1.Solar water heaters.
- 2.Solar water filters.
- 3.Solar tiplitsa and greenhouses.
- 4.Solar dryers
- 5.Solar refrigerators.

These devices will further improve the cultural life and living standards of agriculture. It is also important to provide information on solar energy in colleges, high schools and rural schools. To acquaint students with the achievements of modern solar technology in the teaching of physics, to teach students to work, to increase the scientific level of teaching helps to strengthen.

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