PRODUCTION AND ASSEMBLY OF PHOTOVOLTAIC CELLS

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Abstract. The photoelectric effect, or photoeffect, is the phenomenon of the interaction of light or other electromagnetic radiation with matter, in which photon energy is transferred to the electrons of the matter. The photo effect is of several types.

Key words: External photoeffect, photoelectron emission, radiation, Photocell, optical rays.

In practice, the external photoeffect is important. The external photoeffect is the release of electrons from a substance under the influence of light or any radiation. The phenomenon of external photoeffect is widely used in practice. An example is a photocell. A photocell is an electrical device that absorbs light falling on it and generates an electric current (photocurrent) or photoelectric driving force. The work is based on the phenomenon of photoelectron emission or external photoeffect. A photoelectric cell operating on the basis of photoelectron emission consists of an electrovacuum device with 2 electrodes, a photocathode and an anode placed in a vacuum-formed or gas-filled glass or quartz tube. The light flux falling on the photocathode creates photoelectron emission on its surface; when the photocell circuit is connected, a photocurrent flow opposite to the light current is generated. In a gas-filled photocell, the photocurrent increases as a result of ionization of the gas and the formation of an independent strong discharge. A photocell operating on the basis of the internal photoeffect consists of a semiconductor device with a homogeneous electron-hole junction, a heterojunction or a metal-semiconductor contact semiconductor device. Optical rays are absorbed in such a photocell, the concentration of charge carriers increases and an electric current is generated.

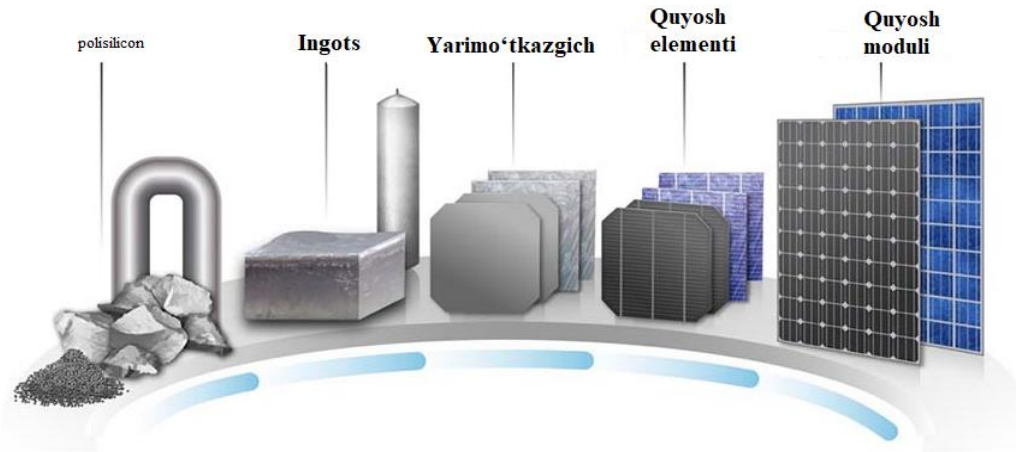

Figure 1. The formation sequence of the solar module.

The picture above shows the stages of solar modules from the polysilicon state to the formation of a solar module.

Photocells usually act as radiation or light receivers. Semiconductor photocells are used to convert solar energy directly into electricity in solar cells and photoelectric generators. The photocell is used in automation, telemechanics, photometry, measuring techniques, metrology, cosmonautics, phototechnics, cinematography and other fields. Photovoltaics is defined as an electrical device that has the ability to turn off electricity when a certain amount of light is present through a certain device, and a photovoltaic cell is also capable of generating energy when exposed to direct sunlight. The most common use it might have is controlling the on and off of various devices, a prime example being a light. It is capable of generating enough electricity to recharge any type of battery or any type of device that can be recharged using voltage. A photocell is used to control the automatic switching on of general lighting. It is also commonly used in electronic metering circuits for objects and people, signaling, etc. The factors that characterize photovoltaic cells may differ depending on the type of operation of each of them, we will learn the main characteristics that describe them below:

- All photocells consist of a standard LDR photoresistor.
- It has cadmium cells in it, which makes them drop in resistance more when exposed to more sunlight.
- They consist only of automatic control elements.
- In order to finish, it is necessary to show that the photocells are configured with relays.

For some people, the way a photocell works can be a bit complicated, the main thing is to have a 120 to 220 volt connection, that way you have a contact left over that can be a device. The one you want to control is connected, the most common of which would be a light bulb in contact with a relay. The power that a photocell can handle is usually completely variable and it all depends on the relay you have, you can get 1800W, which means it can power up to 100 15W bulbs.

In order for a photovoltaic cell to work, it must have a control connection with the device or device it is capable of controlling, which is not a complicated setup as it is basically like connecting a switch to a light bulb. already made photovoltaic cells work efficiently and do their job perfectly, they are distinguished by the fact that they are the artefact that has created innovations in the use of renewable energy at the moment. The main purpose of any photovoltaic cell is to generate electricity, which is mainly achieved by passing sunlight through it. In general, sunlight is made up of photons that strike semiconductors when they strike inside a device, resulting in a completely renewable form of energy that is very useful for a variety of devices. It's important to note that there are many different types of photovoltaic cells in the world, and they usually depend on the function each one is assigned to, another factor that can differentiate them is how they're designed to perform their energy-generating function. Because they are usually used in many technological procedures adapted to work in currently known systems, these systems are mainly used for the automated control of various electrical devices, but they are also very often used in public lighting, as mentioned in the previous lines. To conclude this point, it should be noted that photovoltaic cells can also be used in mobile devices, for example; mobile phones or digital cameras, because with the help of different photovoltaic cells, it is possible to achieve great energy savings for all the devices that we usually carry with us, this phenomenon creates a highly efficient energy system for our devices and therefore they can be charged uniformly. the way you can avoid overloading with impressive electricity. In the world, the importance of photovoltaic cells belongs to public servants, because it has a great positive recognition today, and in public organizations, as well as private ones, they are of great importance, because they are the main part that contributes greatly to energy savings. required at the world level. These processes represent a major technological advance due to the fact that several previously manual loading and unloading functions have been automated.

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