

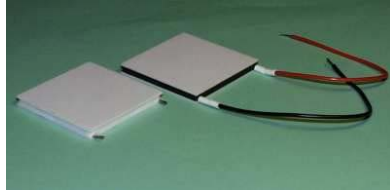


FEATURES AND COMPONENTS OF “LIFEDROPS” PROTOTYPE.

(One application of the Peltier’s cell)

Peltier’s cell was invented by J. Peltier, a French physicist who discovered this phenomenon. The effect is obtained with the help of two special semiconductors

(Telluride and Bismuth Telluride) where direct current flows. The different flow of electrons in the two metals causes the heating of one side of the cell and the freezing of the other one.



When the current reaches a particular extent we can obtain a temperature of $-30\text{ }^{\circ}\text{C}$ on the cold side and $60/70\text{ }^{\circ}\text{C}$ on the hot side of the cell. It is always important to disperse the heat produced in the hot side otherwise the component may burn.



The prototype is made up of:

- a wooden box with a small window through which we can observe how frost is produced
- an element for heating dispersion.

The box works like a freezer as it creates a well insulated microclimate and keeps a lower temperature. A fan helps to draw and drain the damp air. When it reaches the cold surface of the condenser it changes into frost. After a short period, depending on external weather conditions, the circuit feeding the cell stops. The frost, after some minutes, melts and it changes into water and collected in a special case. The cooling cycle starts again drawing some new air. The water drops gathering in a special case are the final result.



The circuit can work in the open air and it is powered by a rechargeable battery and a photovoltaic panel recharging the battery in the day. At night the circuit works exploiting in this way the best weather conditions. Drops of life can provide half a glass of water for night from a 16 square centimeter cooling surface. We

would like to end with tis message: ***Better half a glass of water than a full glass of sand.***

