STARTEF

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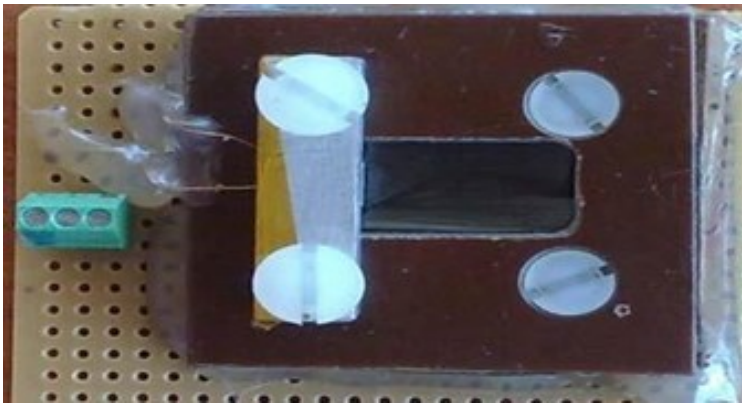
Sample + PROTOTYPE + Test EDT 180421.EDT C



Test: detect on the "EDT" sample

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• Prudentially assumes the Thermal conductivity value equal to: 1570 w * m-1 * k-1
N ° 3 Micropelt thermoelectric converters with high efficiency have been applied (one above the other in order to recover the energy in dissipation from that
below), the first directly in contact with the coated surface "EDT". The power converted into electrical energy, with a differential of 50 ° C, is equal to: 0.48 w
• Overall system efficiency: 55%
• Prudentially, according to the results of the simulations, we believe we can count on the total efficiency close to: 40%
Of fundamental importance is the electronic circuit that must be designed with a specific device for managing the voltage, Boost ÷ Buck, since it must be increased or decreased according to the real thermal gradients in order to recover even the smallest amount of available energy.
The tests were conducted on the sample in the image,
from -50 ° C to 70 ° C, they were made with and without specific anti static spray and the differences found were absolutely negligible.
Also the tests carried out only on the fiber treated with nano-coating (without container Present in the figure) have confirmed similar results at lower temperatures .

- Substrate used: carbon fiber fabric;
- Fill thickness: 200 nm;
- Effective part size: 27mm x 12mm
- 1 ° Thermal conductivity survey with differential equal to 50 ° C: 1750 w * m-1 * k-1
- 2 ° Thermal conductivity survey with differential equal to 50 ° C: 1620 w * m-1 * k-1
- 3 Thermal conductivity survey with differential equal to 50 ° C: 1570 w * m-1 * k-1
- 4 ° Thermal conductivity survey with differential equal to 50 ° C: 1570 w * m-1 * k-1
- 5 ° Thermal conductivity survey with differential equal to 50 ° C: 1575 w * m-1 * k-1

The characteristics of the sample have always remained the same both after low temperature tests below 0 ° C and after tests above 250 ° C.
The tests on the sample were conducted to verify that the nano carry can work by transferring with the desired rapidity the thermal energy that is given by a thermal source that invests it. As already mentioned, tests have been carried out different temperature levels from -50 ° C up to + 250 ° C. It has been possible to ascertain, with constant repetitiveness, that at any temperature level an equilibrium is reached so that the system no longer transmits thermal energy. This equilibrium is reached when the thermal energy that invests the sample is greater than the electric conversion
capacity and resumes, however, to operate as soon as the thermal energy source is, even slightly, lower than the electric conversion capacity. the dimensioning of the thermovoltage converter must be well calculated according to the "EDT" surface and the possible thermal differential. It is also possible to take into account the possibility of influencing the thermal differential by intervening on the photovoltaic system by modifying, investing a small amount of electrical energy by defining a better thermal differential so that the system starts or continues to operate avoiding thermal leveling. In any case, the system does not deteriorate even when the maximum expected energy is largely exceeded. In tests, the maximum energy was exceeded frequently even more than 10 times the maximum expected and no signs of deterioration were noticed.

9.1 EMISSIONS IN THE AIR

The emissions in the air due to internal activities to realize "EDT" elements are to be considered totally negligible, since there are no combustion processes and because the technologies used are free of polluting elements both outside and inside.

9.2 EMISSIONS IN WATER

The emissions in water are negligible because the realization processes are free of any residue.
In any case, even the water used for washing the substrates (carried out without any type of chemical detergent) is filtered before being introduced into the drains or, for a few special cases, it is suitably stored and disposed of according to regulations.

9.3 EMISSIONS IN THE LAND

Emissions in the ground are void.
The machines, intrinsically non-noisy, however, are suitably soundproofing make noise emissions to the outside and also to the inside negligible. Operational protocols are designed so that operators are protected. In any case, the noise levels emitted by the machines never exceed 70dB and the operators are also equipped with all the personal protection devices required by the regulations.

9.4 ELECTROMAGNETIC WAVES - ENERGY BALANCE

The electromagnetic emissions fall within the usual levels of modern machines and in any case in compliance with the regulations. The "EDT" elements are precisely electricity producers. They are devoid of any emission during their whole life. The innovative nano coating with high thermal conductivity that is achieved by physical deposition is absolutely free from any type of degradation, therefore the lifespan is unlimited. However, to deliver the electricity produced, an electronic device (inverter) is essential, which is instead subject to degradation after 30 years of work.
We therefore calculate the EROEI factor: energy produced in the active life of the generator / energy spent to build the generator taking into account an active life of 30 years

Energy spent to make a 1 m² element with high thermal conductivity Coating:
⇒ Direct energy for the final process including washing etc. 5,666 kWh
⇒ Indirect energy for the electronic device (inverter) 6 kWh
⇒ Energy for research for the manufacture of machines and for all the services necessary for the various activities 10,850 kWh
⇒ Direct energy corresponding to the consumption of technical gas 0.1 kWh
⇒ Corresponding indirect energy for the consumption of technical gases for laboratory experiments and for the production of 0.3 kWh machines
⇒ Direct and indirect energy corresponding to the consumption of water (not drinkable) 0.1 kWh
⇒ Total energy expenditure (excluding energy per substrate) 23.016 kWh
Considering, prudentially, to obtain only 0.5 kWh of energy produced per 1 m², the total energy produced will be: 131'400 kWh (in 30 years for each m²)
EROEES = 131'400 / 23.016 = 5'709.07

Also considering, to have only a small temperature differential, and obtain 5° for 10 m² only 3Kw/h of energy produced, the total energy.