CLAIMS

1. An electric power generator (EPG) comprising at least a first electrode (11) and a second electrode (12), wherein the electric power generator comprises an active material between said electrodes (11, 12), said active material comprising particles of at least one oxygen-containing compound selected from the group consisting of MgO, ZnO, $ZrOCl_2$, ZrO_2, SiO_2, Bi_2O_3, Al_2O_3 and TiO_2, at least one thickener additive selected from the group consisting of agar agar, xanthan gum, methylcellulose, and arabic gum, and at least one plasticizer additive, wherein the particle size of the particles of at least one oxygen-based compound has an average diameter in the range from 10 nm to 40 μm, and wherein, when the thickener additive is methylcellulose, it is in an amount in the range from 0.19% and 6.5% with respect to the total weight of the active material.

2. The electric power generator (EPG) of claim 1, wherein the particles of at least one oxygen-containing compound have particle average diameter in the range of 15 nm-10 μm, preferably 20 nm-5 μm.

3. The electric power generator (EPG) of claim 2, wherein the particles of at least one oxygen-containing compound has particle average diameter in the range from 10 to 200 nm, preferably in the range of 15-100 nm, more preferably 20-40 nm.

4. The electric power generator (EPG) of anyone of claims 1-3, wherein the at least one oxygen-containing compound is MgO, in the range from 3% and 17%, preferably 10% with respect to the total weight of the active material.

5. The electric power generator (EPG) of anyone of claims 1-3, wherein the at least one oxygen-containing compound is ZnO or ZrO_2.

6. The electric power generator (EPG) of claim 5, wherein the at least one

oxygen-containing compound is in the range from 0.7% and 10%, preferably 3.7% with respect to the total weight of the active material.

7. The electric power generator (EPG) of anyone of claims 1-6, wherein the at least one thickener additive is selected from the group consisting of agar agar, xanthan gum.

8. The electric power generator (EPG) of claim 7, wherein the at least one thickener additive is in the range from 0.19% and 6.5 %, preferably 0.84 % with respect to the total weight of the active material.

9. The electric power generator (EPG) of anyone of claims 1-8, wherein the at least one plasticizer additive is selected from the group consisting of silicone, siloxanes, carnauba wax, Naphtalene, PVDF, Parylene, PTFE, FEP and PDMS.

10. The electric power generator (EPG) of anyone of claims 1-9, wherein the active material comprises silicone in an amount in the range from 5% to 40%, preferably 12.5% and 37.5%, more preferably 33.3% with respect to the total weight of the active material.

11. The electric power generator (EPG) according to anyone of claims 1-3, wherein it comprises MgO, ZnO, $ZrOCl_2$, agar agar, xanthan gum, methylcellulose and silicone.

12. The electric power generator (EPG) according to anyone of claims 1-11, wherein said electrodes are made of different materials.

13. The electric power generator (EPG) according to anyone of claims 1-11, wherein said electrodes are made of the same material.

14. The electric power generator (EPG) according to claim 12, wherein said first

electrode (11) is made of copper and wherein said second electrode is made of aluminum.

15. The electric power generator (EPG) according to claim 13, wherein said electrodes are made of copper.

16. The electric power generator (EPG) according to anyone of claims 1-11, wherein said electrodes are made of a material selected in a group consisting of metals, alloys and carbon based materials.

17. A power generator module (PGM) characterized in that it comprises a plurality of electric power generators (EPGs) according to any one of the claims 1-16, wherein said generators are connected in parallel or in series.

18. A power generator module (PGM) according to claim 17, wherein when said EPGs are connected in series, the electrodes of different EPGs are electrically connected by a conductive wire.

19. A power generator module (PGM) according to claim 17, wherein when said EPGs are connected in series, the EPGs are piled up so that the surface of an electrode of a first EPG is in contact with a surface of a second EPG.

20. An electric circuit (EC) comprising an EPG according to any one of the claims 1-16, wherein said circuit (EC) also comprises, a capacitor (C), a resistor (R_L) and a switch (SW) and wherein:

- in a first switching state, said switch (SW) connects said capacitor (C) in series with said EPG; and

- in a second switching state, said switch (SW) connects said capacitor (C) in series with said resistor (R_L).

21. An electric circuit (EC) comprising an PGM according to any one of the

claims 17-19, wherein said circuit (EC) also comprises, a capacitor (C), a resistor (R_L) and a switch (SW) and wherein:

- in a first switching state, said switch (SW) connects said capacitor (C) in series with said PGM; and

- in a second switching state, said switch (SW) connects said capacitor (C) in series with said resistor (R_L).