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**Advanced processing strategies for the development of energy efficient devices with eco-friendly, natural materials**

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The search for green technologies and the reduction of environmental impacts has become a constant in the scenario of technology options worldwide and in particular in countries with emerging economies that adapt very easily to the new paradigms of sustainability. Therefore, it is essential to develop new processing strategies for the green manufacture of ceramics to preserve natural sustainability and to generate clean and sustainable energy resources in remote areas. Therefore, the future of ceramic materials requires now to search for simple technological options that result in the use of low energy consumption and low emission of effluents to the environment and low cost. Processes involving mimicry, reuse, recovery, simple value-added products, in short, the development of the methodologies with strong ecological appeal can effectively aid to the economic turnover in manufacturing processes and it is one of the major challenges since the end of last century. This work, deals with the development and optimization of energy efficient processes to generate clean and sustainable energy sources such as the surface activation of natural nanotubes based on Palygorskite clay and the use of vegetable fiber Luffa Cylindrical as replica in porous burner technology. In the first case the green chemistry on surface activation by change Mg cations by radionuclides Ni, Sr, in stable condition shows a promisor potential using this raw material in the mitigation by immobilization of industrial nuclear rejects. In the second one, the controlled colloidal processing shows that it is possible to use silicates to fabricate burning gas light with luminescent characteristics, resistant to use in remote places that have not yet the electric energy available for lightning.