IMPROVED MANUFACTURING THROUGH CONTINUOUS HIGH TEMPERATURE MICROWAVE PROCESS: THE DESTINY PROJECT

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Within a context of climate change legislation, volatile energy prices and increased environmental awareness, modern manufacturing aims to promote modern and renewable energy solutions as well as on sustainability and eco-efficiency. The DESTINY project will realize a functional, green and energy saving, scalable and replicable solution, employing microwave technology for continuous material processing in energy intensive industries. High temperature microwave heating has not been implemented yet as a full-scale industrial process, even though it is efficient, sustainable, suitable for connection to electricity grids and ideal for industrial down-scaled plants targeted to lean and on-demand production.

DESTINY will develop a new concept applicator, combining a specific design that focus the electromagnetic energy in the target materials, together with a more uniform field configuration along the reaction chamber. The modulating internal wavelength (to adapt the signal to the selective heating of the raw materials) will allow raw materials to be efficiently heated despite of their low microwave absorption. DESTINY aspires to introduce the "first-of-a-kind" high temperature microwave processing system at industrial level, offering vital benefits to energy intensive sectors: reduced energy consumption, lower lifetime operating costs and enhanced sustainability profile.

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