



**POLY (LACTIC ACID) FOAMING ASSISTED BY SUPERCRITICAL CO<sub>2</sub>**

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The poly (lactic acid) (PLA), through its organic origin and its biodegradation properties, can be a good alternative to petroleum-based polymers. To this end, the foaming of PLA by supercritical CO<sub>2</sub> was evaluated in this study as an alternative to expanded polystyrene (EPS) for the production of food packaging. Because low rheological properties of this type of polyester, a first chain extension step was necessary to ensure a good foaming ability of PLA. Following a full characterization in physicochemical, rheological and thermal domain, a batch foaming assisted with supercritical CO<sub>2</sub> was achieved. The influence of the foaming parameters, the extent of chain modification as well as the contribution of crystallization on cell morphology was evaluated. Based on these parameters, structures ranging from micro to macro-cellular-cell were obtained.