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Production of a recycled polycarbonate nanofiber using the blow-spinning process Araújo, F.A.(1); Pereira Júnior, A.A.M.(2); Weber, R.P.(2); (1) UFSCAR; (2) IME;

One of the most common issues related to polymeric products is improper disposal on the environment, taking decades for its degradation. Prolonging its lifespan or reusing the material in new products by the means of recycling, is a viable solution for minimizing environmental impacts. The solution blow spinning process is a technique which allows a large-scale production of fibers with nanometric diameters from different thermoplastic polymers, with low cost and diverse applications while avoiding improper disposal and reducing environmental impacts. This work objective was the production of nanofibers using polycarbonate industrial waste, that is, obtaining a product by means of secondary recycling. The samples were produced following a experimental design using increasing concentration and varying work pressure as these parameters were stabilished to be the most influent on fiber morphology. The samples were characterized and analysed using scanning electron microscopy and Fourier transformed infrared spectroscopy. The scanning electron microscopy results showed a gradual improvement on fiber morphology and reduction of fiber diameter with increasing polycarbonate concentration, achieving nanometric diameter starting from concentration of 18%w/v.