Elizabeth Carvalho Leite Cardoso, J Pet Environ Biotechnol 2016, 7:6 (Suppl)
http://dx.doi.org/10.4172/2157-7463.C1.025

Development of partially biodegradable foams from PP/HMSPP blends with natural and synthetic polymers

Elizabeth Carvalho Leite Cardoso
Nuclear and Energy Research Institute- IPEN, Brazil

Polymers are used in various applications and in different industrial areas providing enormous quantities of wastes in environment. Among diverse components of residues in landfills are polymeric materials, including polypropylene, which contribute with 20 to 30% of total volume of solid residues. As polymeric materials are immune to microbial degradation, they remain in soil and in landfills as a semi-permanent residue. Environmental concerning in litter reduction is being directed to renewable polymers development for manufacturing of polymeric foams. Foamed polymers are considered as future materials, with a wide range of applications; high density structural foams are specially used in civil construction, in replacement of metals, woods and concrete with a final purpose of reducing materials costs. At present development, it was possible the incorporation of PP/HMSPP polymeric matrix blends with sugarcane bagasse, PHB and PLA, in structural foams production. Thermal degradation at 100, 120 and 160ºC temperatures was not enough to induce biodegradability. Gamma irradiation degradation, at 50, 100, 150, 200 and 500 kGy showed to be effective for biodegradability induction. Irradiated bagasse blends suffered surface erosion, in favor of water uptake and consequently, a higher biodegradation in bulk structure.

Biography

Elizabeth Carvalho Leite Cardoso has completed her PhD in Nuclear and Energy Research Institute/Universidade de São Paulo (USP), in 2014. She has done her Post-doctoral studies in CQMA, involving PP/HMSPP foams with aliphatic polyesters intercalated with nanoclays and PLA/PBAT flexible films reinforcing with bio-calcium carbonate.

zhaocj@nercita.org.cn

Notes: