

# IONIZING RADIATION COMPATIBILIZATION IN BIO-BASED BLENDS FROM PBAT/PLA REINFORCED WITH BIO-EGGSHELL

Reference	Presenter	Authors (Institution)	Abstract
04-071	Elizabeth Carvalho Leite Cardoso	Cardoso, E.C. (IPEN / CNEN - SP); Parra, D.F. (Instituto de Pesquisas Energéticas e Nucleares); Scagliusi, S.R. (INstituto de Pesquisas Energéticas e Nucleares); Komatsu, L.G. (Ipen - Instituto de Pesquisas Energéticas e Nucleares - SP); Lugão, A.B.(Instituto de Pesquisas Energéticas e Nucleares);	Plastics global annual production exceeds 300 million tons and 99% is originated from oil or fossil combustibles. The amount of plastics wastes utilized exceeds the amount into landfills, prejudicing effectively the environment. As an alternative, they are being slowly replaced by bioplastics, as PLA (poly-lactic acid) and PBAT (butylene adipate co-terephthalate). Food and dairy industries produce annually huge amounts of avian eggshells residues and their disposition presents a serious environmental risk. Bio-load from avian eggshells as polymers reinforcement is based in their higher benefits as resistance and rigidity besides being a friendly environmental material, degradable and renewable. PLA and PBAT are thermoplastics capable to be processed by conventional methods: nevertheless, due to their high interfacial tension, it is required the use of compatibilizers. In this work, additives and heat generally used as compatibilizers were replaced by e-beam radiation, at 150 kGy dose. PBAT/PLA blends were prepared at the weight ratio of 82 / 18 and 5.0 phr of PLA 150 kGy e-beam radiated, at 2.5, 5.0 and 10.0 phr of bio-eggshells. Samples were homogeneized in a co-rotating twin-screw extruder and further characterized for: DSC, TGA, FTIR, XRD and Mechanical essays.