

## INFLUENCE OF ULTRASOUND PARAMETERS ON THE MECHANICAL AND RHEOLOGICAL PROPERTIES OF PLA/PBAT BLENDS COMPATIBILIZED WITH AN EPOXY-BASED CHAIN EXTENDER

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In this work, 50/50 wt% blends of PLA and PBAT with and without a chain extender agent with multifunctional epoxy groups (Joncryl ADR-4468) were prepared by ultrasound-assisted melt blending in a Brabender chamber. The ultrasound parameters that were analyzed were the time (0, 5, 10, and 15 minutes), the frequency ( $20 \pm 0.5$  KHz), and the power (188, 375, 562, and 750 W) applied. The torque rheograms showed an increase in the final torque when increasing the time and power of ultrasound at a constant frequency, mainly in the blends prepared with a chain extender. The complex viscosity of the blends without a chain extender gradually decreased with time and ultrasound power at a constant frequency, while in the blends prepared with a chain extender, an opposite effect was observed; the complex viscosity increased with increasing time and ultrasound power. The compatibilized blends with the chain extender showed increased Young's modulus and elongation at break compared to blends without an extender using the same ultrasound conditions. The previous results indicate that the application of ultrasound favored the compatibility of the immiscible PLA/PBAT blends with the chain extender agent.

**Keywords:** Ultrasound assisted melt blending, Biodegradable polymers, Chain extender

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