



**ENERGY EFFICIENT DEPOLYMERIZATION OF POST CONSUMER POLY-LACTIC ACID WITH  
ULTRASONICS**

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The expanding market of poly-lactic acid (PLA) based plastic products such as water bottles and packaging materials has raised concerns of contaminating the recycling stream which largely constitutes of petroleum plastics. A possible solution is the development of an energy efficient and economically viable PLA recycling process. This paper explores the feasibility of ultrasonics to recycle lactic acid by depolymerizing PLA. Post consumer PLA chopped to 1mm<sup>2</sup> was exposed to high power ultrasonics with water or methanol as the suspension media. The treatments were conducted in the presence of organic and ionic salts of alkali metals such a potassium. The treatments were replicated by replacing ultrasonics with hot water bath as the energy source. Analysis with HPLC (high performance liquid chromatography) indicated PLA to lactic acid conversion was achieved with yields up to 100% utilizing ultrasonics.