# How Can PLA Degrade in an Aerobic Home Compost?

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The U.S., like much of the world, is in a plastic waste crisis and, because of the pandemic 2.4 billion single- use plastic face masks and face shields are being thrown away each day. In more recent years, scientists have been experimenting with making biodegradable plastics and manufacturers have been creating bioplastic food containers, bags and even face masks. These bioplastics claim to degrade in commercial and sometimes home composts however often, commercial composting companies don’t accept bioplastics because the Tests(ASTM D6400) show conflicting evidence. Many manufactures claim that their material is home compostable but challenging because there are no actual tests and results to confirm this. To address this knowledge gap, I conducted a field scale experiment where I tested the degradability of bioplastics in three experiments; over 30 days and 60 days and 30 days, 2 different types of home composts, I pretreated the masks in 4 different ways and here i discovered that even bioplastics that claim they degrade in a backyard compost do not degrade within 60 days. My results show that the PLA from manufactures that claim it biodegrades does not yet biodegrade in a home compost, even with the different conditions that I experimented with. This shows that we need to continue to do experiments like mine to test if these materials biodegrade and find ways to manage this bio-based waste.

**Awards Won:**