

Yolo Plastics: Executive Summary

Yolo plastics focuses on reducing the costs of recycling plastic pollutants by engineering microorganisms to convert plastic waste into biomass and high-value chemicals, promoting a more sustainable plastics industry. We call our approach “*biocycling*” and expect this process to generate revenue from (a) recycling services provided directly to customers with plastic-rich waste streams and (b) reselling valuable degradation byproducts.

While plastics recycling has become universally viewed as environmentally friendly, current recycling technologies are actually the epitome of inefficiency, utilizing an incredible 4,000,000 kilojoules of energy to degrade 1000lbs of Poly(ethylene) Terephthalate (PET), the most abundant consumer plastic. Most of this energy comes from burning natural gas and electricity. This energy cost makes recycled PET roughly X-times more expensive than virgin material. Of course, technologies that can enhance the SOMETHING of plastic recycling not only make economic sense, but also make environmental sense by reducing the amount of plastic in our landfills and in the environment.

Our currently technology is focused on degrading PET into Terephthalic Acid (TPA), a valuable precursor for *de novo* plastic synthesis. TPA currently sells for about \$1400 per ton, with millions of pounds currently produced annually. The market for TPA is rapidly expanding. In addition, by reintroducing our biocycled TPA back into plastic production we enrich the percentage of recycled material and reduce the need for petroleum-based synthesis.

To producers of mixed synthetic materials waste, such as the carpet industry (the number one producer of such waste by weight) and municipal recycling centers, we offer the value proposition of reduced waste disposal costs.

Companies will invest in Yolo Plastics because “going green” incentivizes companies to distinguish themselves as more progressive and economically sustainable. Furthermore, this race for more biodegradable plastic creates large demand for products that will allow Amber Enterprises to thrive. With the World Wildlife Fund initiative, dubbed the Plant PET Technology Collaborative, Fortune 500 companies such as Coca-Cola, Nike, and Ford will be more than willing to dedicate investment into the bioplastic industry for environmental innovation in widely used packaging processes. TPA, independently valuable to the chemical and material industries, can be sold to companies creating biodegradable plastics. TPA can be converted into PHA, which is in high demand in the materials realm due to its pure biodegradable nature. The PHA industry itself is growing around the world allowing in turn a market for TPA producers to grow. Since our TPA will be grown biologically we can market a new synthetic form of TPA for other PET producers.

Coupling the business model of synthesizing chemical compounds utilized in sustainable materials with the necessary consumer utility and international demand for environmentally sustainable infrastructure and materials, the potential place for Plastique as a corporate leader and industry standard in an upcoming multi-million dollar enterprise is evidently clear. With high demand and an under populated market, Plastique fits well with needs on a consumer and corporate level, and has the potential to develop into a world class recycling and chemical synthesis endeavor.