



PLA Recovery & Recycling

- a pilot project at University of Wisconsin - Stevens Point

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March 19th, 2012



FRESH project overview

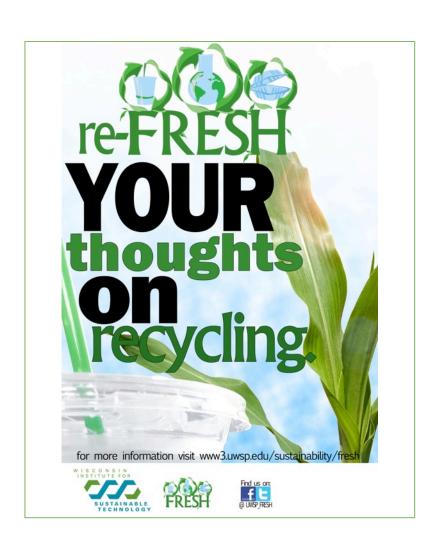
- Focused Research Effort for Sustainable Habits
- UW-Stevens Point Dining Services began purchasing PLA food serviceware in Fall of 2009 to replace styrofoam containers
- However, no industrial composting capability on campus or source segregation of bio-based plastics
- Explore landfill diversion options other than composting
- Chemical recycling of post-consumer PLA waste
- Study environmental sustainability and economic feasibility of using and recycling PLA products





Objectives

- Study the environmental sustainability and economic feasibility
- Divert from landfill as much postconsumer PLA on campus as possible
- Work toward engaging Stevens Point area businesses using PLA products and implement collection efforts
- Evaluate quality & end uses of post-consumer derived lactic acid
- Undertake LCA study





Marketing & Education

- Promotional effort with unified brand
- Poster campaign
- Collection bin advertising
- Facebook and Twitter campaigns
- Presence at Freshman orientation
- Website (http://www.uwsp.edu/fresh)
- Questionnaire and survey





Logistics & Research

- Secure support from diverse campus entities:
 - Dining Services
 - Facilities' Management
 - Custodial staff
 - Materials' Recovery Center
- Collect weight data for material recovered
- Compare source segregated product against stock inventory
- Undertake waste audit to check for material not source separated
- Monitor for PLA occurring in other campus recyclate streams
- Evaluate chemical recycling





Chemical recycling

- Breakdown PLA to constituent lactic acid molecules
- Acid hydrolysis at elevated temperature and pressure
- Result is concentrated solution of lactic acid





Challenges

- A diversity of stakeholders on the University campus – achieving buy-in from all constituents
- Our campus audience recognizes
 PLA serviceware as being compostable
- Starting recycling effort requires different messaging
- Messaging in a sea of other messages vying for the campus attention
- Differing opinions about what is the 'best' end of life management option





Opportunities

- Non-food end uses
 - Descaling properties and widely applied in household cleaning products
 - Lactic acid is used as a natural anti-bacterial agent in disinfecting products
 - Runway anti-icer and de-icer
- Use LCA to assess comparative impacts of different end-of-life scenarios in context of UWSP







The team & funding

- Waneta Kratz
- Lizzy Lepinski
- Amy Novak
- Christine Kuhn
- Aaron Howard
- Dan Neckar

Funding from Wisconsin StateEnergy Office – John Baldus







Videos and website

- http://tinyurl.com/7gc2q3g
- http://tinyurl.com/7ymkxxw
- http://www.uwsp.edu/fresh

