



University of Wisconsin  
**Stevens Point**

# PLA Recovery & Recycling

- a pilot project at University of Wisconsin - Stevens Point

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March 19<sup>th</sup>, 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

**Did you know?**

- The clear plastic containers provided by Dining Services are made of corn.
- These clear plastics can now be recycled on campus.

When you are done eating, please recycle your clear plastic food or drink containers by placing them in the white bins provided in the DUC and Debot areas by the FRESH project.

**FRESH**

for more information visit [www3.uwsp.edu/sustainability/fresh](http://www3.uwsp.edu/sustainability/fresh)

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## Objectives

- Study the environmental sustainability and economic feasibility
- Divert from landfill as much post-consumer 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 recycle 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 State Energy Office – John Baldus





## Videos and website

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

