



CUWP is a ten-million-dollar multi-university center funded by the Department of Energy. CUWP consists of six universities and over twenty-five industrial partners. The mission of CUWP is to provide technical, environmental, and economic information on chemical recycling of plastic waste. This information is shared with scientists, engineers, policy makers, business leaders, and the public to help make informed decisions about the costs and benefits of new technologies for plastic recycling.

Every year from across North America and around the globe both industrial and academic partners come together to provide technical, environmental, and economic information on chemical upcycling at the CUWP Annual Meeting. This year's annual meeting held at University of Wisconsin-Madison focused on the following topics and renewal CUWP.

### **1. Solvent based recycling topics (STRAP process)**

STRAP utilizes solvent washes to recycle multilayer films commonly used in packaging. STRAP PE production has been increased while film yellowness has decreased meaning a lower number of impurities. In the future STRAP can be integrated with other recycling technologies.

### **2. Thermochemical conversion of plastics**

Both the wax and oil produced by pyrolysis of waste plastics can be upgraded to monomeric olefins. This adds functionality to what was considered a waste. Pyrolysis needs to be modeled or standardized to provide end users with better information on composition. This has been done with HDPE.

### **3. Catalysts and plastic upcycling**

Alcohols, amines, and acids can be upcycled from the olefin rich pyrolysis oil made from HDPE and PP. The next milestone will be demonstrating catalyst regeneration to regain >90% of original activity.

#### **4. Mechanical recycling and characterization**

Most of the energy used in recycling is associated with material recovery facilities (MRFs) and not transportation. Meaning larger MRFs decrease greenhouse gas emissions making recycling plastics even more sustainable. Currently cardboard and paper are the recyclables with the greatest revenue to mass ratio due to our infrastructure. As recycled plastic mass increases in the future then the revenue to mass ratio gained from these recyclables is predicted to increase at a faster rate than paper.

#### **5. Systems analysis, modeling, and outreach**

Using the BioSTEAM software that was developed by a member of CUWP, multiple scenarios have been modeled and optimized. For example, solvent boiling points for STRAP as well as temperature drop for precipitation of the plastic polymer. Due to increased flux, these scenarios need to be evaluated even more rapidly than they are now.

Remember that what helps most of all is recycling what you can when you can. Outreach through school programs and news outlets is a part of CUWP's mission, but consumer behaviors must change for our goals to be truly realized. Please visit CUWP at [www.cuwp.org](http://www.cuwp.org) for information about us, partnerships, publications and more.