

## Recycling Plastics Beyond Bottles: BAGS, WRAPS, & FILM



The Association of  
Plastic Recyclers

Marketable Material, Growing Demand



### Film Plastic “Closed Loop” Recycling Case Study - University of Colorado, Petoskey Plastics and Grainger Supply

**PROGRAM MANAGER:** University of Colorado – Boulder Zero Waste Lab

**WEBSITE:** <https://www.colorado.edu/ecenter/recycling/resources/research-and-development-rd-centers>

**LOCATION:** Boulder, CO

**PARTNERS:** Recycler: Petoskey Plastics, headquartered in Petoskey Michigan with recycling/remanufacturing in Hartford City, Indiana. Supplier of recycled Petoskey trash bags: Grainger Supply, CU’s preferred distributor

**POPULATION SERVED:** The entire campus and student population benefits from recovering material generated in University stockrooms, maintenance areas, and bookstores, and then purchasing trash bags made with PCR sourced from bag/film material.

**MATERIALS ACCEPTED:** Flexible film packaging from campus purchasing of goods.

#### Closed-Loop Program Description:

1. **Collection** - CU collects and bales used plastic film at its Distribution Center and ships it to Petoskey’s advanced facility in Hartford City, IN.
2. **Reprocessing** - Postconsumer plastic is manufactured by Petoskey into GreenPe® Resin that is then used to make Greencore brand blown film and bag products. This recycled resin is sandwiched between outer layers of virgin resin.
3. **Sustainable Purchasing** - The operating partnership between Grainger and Petoskey allows CU to purchase considerable amounts of finished, recycled product as Greencore bags.

## Details of Campus Collection and Processing:

1. **Collection/Recovery Points** – CU targets stock rooms, maintenance areas, and bookstores as the predominant sources of clean dry film.
2. **Types of Storage Containers** – CU employees use mail-carts in stock rooms and bookstores. Maintenance operations personnel use large appliance boxes, all signed appropriately for indoor storage.
3. **Material Handling and Transport** –CU’s Distribution Center staff collect the material and backhaul to the DC as part of routine deliveries in 18’ box trucks. Locations are collected as needed- 1-2 times/month.
4. **Quality Control** - Clean, dry material free from contaminants is maintained with bin signage, website procedures, periodic announcements, and most importantly, DC staff collecting carts or feeding the baler.



5. **Densification** - The University DC utilizes a compact footprint Orwalk Baler to compact the collected film. Petoskey also offers various baler purchase options, including a credit plan based on production.

4. **Shipping** – Material is picked up FOB-Boulder. Petoskey arranges and pays for ground transport from CU’s DC to the Indiana facility. CU must have a minimum of six pallets staged for shipment. A shrink wrapped standard pallet holds four bales, each weighing about 150 lbs for a pallet weight of approximately 600 lbs and for at least 3,000 pounds per shipment.

## Details of Greencore Bag Sustainable Purchasing:

Greencore bags containing GreenPE resin are the default for most large campus users, including custodial, food service, and special events. The University purchases bags primarily from Grainger Supply through CU’s Procurement Services department’s portal, “Marketplace”. In 2016, over 3,000 cases of bags in a variety of sizes and specifications were purchased via Marketplace to meet the ongoing needs of campus Maintenance, Repair and Operations (MRO)

Custom bags in university colors are used for tailgater beverage container recovery at CU athletic events. These are purchased through Grainger and stocked by the University Athletic Department. See photo for an example tailgater bag. In 2016, 200 cases of these bags were used.



## **BENEFITS OF THE CLOSED LOOP PROGRAM:**

*Greencore bags cost less, perform better, and are better for the environment.*

- Reducing LDPE contamination of other recycling streams. Other campus recyclables are collected single stream and processed by the Boulder County MRF, operated by Eco-Cycle, Inc. LDPE film can interfere with the MRF processing equipment.
- Collaborating with a proven American company to “close the loop” via University procurement of finished goods. Petoskey creates demand by sourcing UC generated material, while providing the added benefits of shipping and a modest revenue stream.
- Creating effective awareness and a compelling narrative to build participation by linking campus recycling to a high-performance everyday product that incorporates recycled material. The “closed-loop” message is reinforced as Petoskey’s custom imprinted bags are used regularly on campus.

CU has purchased Greencore bags almost exclusively. Over 3,000 cases, or 70,000 pounds of PCC has displaced virgin resource inputs, which to CU, is the definition of successful recycling.

Petoskey Plastics provides a sustainability report to the University summarizing the positive environmental benefits of the closed loop program. In 2015 for instance, PCC saved more than 418,000 gallons of water and 2,950 gallons of gas.



## **LESSONS LEARNED:**

**Price** – The price for Greencore bags is lower than virgin resin bags due to preferred pricing by Petoskey to Grainger. The savings are passed along to CU.

**Quality** – Greencore bags are high-performing under the demanding conditions of the university’s various uses. Performance metrics such as thickness, mil strength for bursting and retention are comparable to competitors’ products that do not contain recycled resin.

**Availability** – The Greencore bags are readily available through common procurement sources and methods on campus.

**Innovative Partnership** - As in any industry, developing strong and long-lasting vendor relationships is key. Petoskey, Grainger and CU are committed to an ongoing collaboration in the Closed Loop program.

Work is underway by Petoskey on a Greencore bag that performs better, at lower cost, with custom imprinting.

Grainger has been instrumental in working with University MRO to deliver a product meeting their service expectations in an environment of significant competition.

CU’s Zero Waste Lab is advancing the project through its network of campus and industry leaders.