

## Common Threads Garment Recycling Program

Patagonia has a long history of innovating to reduce environmental impact, from using recycled soda bottles in our Synchilla® jackets beginning in 1993 to switching to 100% organic cotton in 1996. The Common Threads Garment Recycling Program, launching in the Fall of 2005, marks the latest milestone in our history of environmental innovation.

Through the Common Threads Garment Recycling Program, Patagonia will collect worn-out, old Capilene® base layer garments from customers in order to recycle the garments into new polyester (PET) that will be used to make new filament yarns. Using the ECOCIRCLE™ recycling system from TEIJIN, a progressive fabric manufacturer in Japan, Patagonia's old Capilene garments can now technically be reprocessed into new fibers.

Using old Capilene garments to make recycled polyester has several environmental benefits. As traditional polyester is made from petroleum, using recycled fibers greatly reduces the fossil fuel-based inputs needed to manufacture polyester. The new process also uses far less energy in manufacturing, thus reducing the production of related greenhouse gases such as carbon dioxide. In addition, the program will enable us to take responsibility for Patagonia's Capilene garments at the end of their useful life. This take-back program will give us the ability to limit the waste that we are responsible for by diverting old garments from landfills – in perpetuity!

While the use of recycled PET significantly reduces the direct use of petroleum and natural gas (the raw material source for the production of DMT (dimethyl terephthalate) the primary precursor chemical used in the production of polyester), recycling U.S. based Capilene garments involves increased transportation related environmental impacts due to transcontinental shipments of used garments between the U.S. and Japan. Thus, we wanted to compare the environmental impacts of TEIJIN's three PET manufacturing options. We evaluated the energy use and greenhouse gas emissions that result from the following three scenarios:

- A.) Virgin Process: TEIJIN's production of polyester from virgin materials
- B.) Locally Recycled Process: TEIJIN's production of polyester using recycled garments that were collected in Japan. (Garments collected at Patagonia Japan locations fit into this scenario.)
- C.) Recycled Capilene Garment Process: TEIJIN's production of polyester using Patagonia's recycled Capilene garments that were collected in the U.S.

We completed a detailed environmental analysis on these three options that is available upon request. We were able to compare the environmental impacts of manufacturing virgin and recycled polyester as well as quantify the impact that results from transporting used Capilene garments from our U.S. customers to Japan. The results of the detailed analysis are summarized in the chart on the following page.

## Results: Energy Use and CO<sub>2</sub> Emissions Per Ton of DMT Produced

Category	Option A TEIJIN w/ out Recycling	Option B TEIJIN w/ Local Recycling	Option C TEIJIN with Capilene Recycling	Units
Distance	**	**	7,000	Miles
Fuel for transport	**	**	38	Gallons
Energy (production)	72,422	11,962	11,962	Mega Joules
Energy (transport)	**	**	5,771	Mega Joules
<b>Total Energy</b>	<b>72,422</b>	<b>11,962</b>	<b>17,733</b>	<b>Mega Joules</b>
CO <sub>2</sub> emissions (production)	4.18	0.98	0.98	Metric tons
CO <sub>2</sub> emissions (transport)	**	**	0.226	Metric tons
<b>Total CO<sub>2</sub> Emissions</b>	<b>4.18</b>	<b>0.98</b>	<b>1.20</b>	<b>Metric tons</b>

\*\*These environmental impacts in options A and B are factored into TEIJIN's production energy use figures.

### Conclusion:

We realize our analysis indicates that in terms of energy use and CO<sub>2</sub> emissions, the process of recycling old Capilene garments and shipping them from the U.S. to Japan, is not the option with the least impacts. It also revealed that surprisingly, the international shipping from the U.S. to Japan is not the area that produces the greatest impact. This only accounts for approximately 30% of the total transport impact. The transportation required to move old Capilene garments from customers' closets to Patagonia collection centers domestically has the greatest potential to produce environmental impacts. This is an encouraging finding because it's an area over which we have some control. By making wise choices, we have the opportunity to significantly reduce the impact of the overall process!

We provide this information for the benefit of our customers, the public at large, the media, and students conducting research on these topics. We hope that this information will help our customers understand why we have embarked upon such a program and how they can help reduce our collective ecological footprint. We wanted this analysis to reveal realistic environmental impacts that could result from transporting garments to Japan. We had to make assumptions, as we don't know how our customers will participate. We tried to think of our own habits and what would be best for the planet. We chose one scenario that would be best from an environmental perspective with the hope that this will encourage people to participate in the way with the lowest impact. For example, mailing in old Capilene garments rather than making a special trip to drive them to a Patagonia store results in significant energy and emissions savings.

It's critical that we recognize that recycling clothing is not a cure-all for our environmental challenges. Room for improvement abounds. We plan to continue to hold ourselves to a rigorous standard for reducing our environmental footprint, with the support and cooperation of our suppliers and our customers alike. On the transportation front, greater use of alternative energy and high-volume shipping methods (such as railway and ship) will help to reduce the impact. Greater use of alternative energy in domestic and international transportation will also be a boon. It is our hope that as demand grows for clothing made using recycled garments, facilities such as TEIJIN's ECOCIRCLE™ recycling plant will open in more locations, reducing the mileage collected garments needs to travel on their journey. We feel that all of these factors work together to make Common Threads Garment Recycling Program a very worthwhile program.