



Astral Buoyancy Aquavest



From the floor of an Indonesian rainforest, the Ceiba Pentandra tree rises 150 feet, and its lush crown spreads like an umbrella. Climbing to the upper limbs, a local man reaches for soft bulbs that hold a silky fiber called kapok. When his harvest is complete, the man will bale large bundles of kapok and export them around the world to serve mainly as stuffing for pillows and mattresses.

Some of the kapok, though, will go to North Carolina, home of **Astral Buoyancy**, which transforms the fiber into foam for life jackets. Why is Astral's owner, Philip Curry, reaching so far and wide to source material for his PFDs? It turns out that Curry and other conscientious folks in the outdoor industry are going to great lengths to rid their products of PVC, a potentially harmful plastic.

Used in a wide variety of products, from building materials to chew toys for babies, PVC (polyvinyl chloride) is durable, versatile and inexpensive. For years, outdoor companies used it not only for foam in PFDs, but also as a waterproof coating for rainwear; a fabric for luggage, a midsole component for shoes and a skin for dry bags. But about 10 years ago, companies began to learn that the manufacture and disposal of PVC produces some nasty stuff that can harm people and the environment.

In 1997, Greenpeace produced a report titled

Shifting formulas

BY MARCUS WOOLF

"The PVC Lifecycle: Dioxin from Cradle to Grave," which detailed how PVC was a major source of dioxin pollution. Dioxins are toxic substances that involve chlorine or chlorine-based chemicals, and when PVC is manufactured or disposed of (particularly when it is burned), large amounts of dioxins are formed. The Greenpeace report claimed that PVC was harming the health of wildlife and contributing to the development of cancer and other ailments in people.

Subsequent reports have reinforced the Greenpeace study. In 2004, the Center for Health, Environment and Justice published a study that said, "PVC in landfills poses significant long-term environmental threats due to leaching of toxic additives into groundwater, dioxin-forming landfill fires, and the release of toxic emissions in landfill gases." Such studies were a wake-up call for outdoor companies that have been working for the last decade to find replacements for PVC.

OUTDOOR COMPANIES GO PVC-FREE

In the 1990s, **Patagonia** produced a duffel called the Black Hole Bag, which included PVC fabric. "But, as we learned about the effects of PVC, we decided to change it, and in 2000 we moved to a urethane for that product," said Jill Dumain, Patagonia's director of environmental analysis. "That was the last item in our luggage line that had PVC in it, so it was a big milestone for us to get rid of it in the quantities we were using."

Also in the '90s, Philip Curry launched his first PFD company, **Lotus Designs**. Though Curry immediately searched for PVC-free materials to make buoyant foam, he didn't have much luck. When he eventually sold Lotus to Patagonia, he hoped the new parent company could help solve the problem. However, by the time Curry cut his ties to Lotus in 1999, the PVC issue had not been solved. Then, in 2002, Curry launched Astral Buoyancy and began sourcing kapok as a natural alternative for his life jackets.

While kapok served as an environmentally friendly solution, the material provided less structure than PVC foam and made it more difficult to tailor PFDs to have a technical look. Curry

Kokatat RON



Companies aim high in their efforts to *phase out toxic PVC* in a wide array of products.

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produced foams from other PVC-free materials, such as EVA (ethylene vinyl acetate) and polyethylene, but he also asked Winboss—the main foam supplier for PFDs—to produce a PVC-free product.

“They got real invested in looking for alternatives,” said Curry. “While they were developing a PVC-free foam, I replaced all the backs of jackets with polyethylene, and immediately 50 percent of the line went PVC free. With another 50 percent of the line, I integrated kapok.”

In 2005, Winboss introduced Gaia, its first PVC-free foam, which made a big splash in the paddling market in 2006. Just about every PFD manufacturer, including Astral, Kokatat, Patagonia and MTI Adventurewear, has embraced it, and Gaia proved to be one of the notable marketing stories for paddlesports at the 2006 Outdoor Retailer Summer Market trade show.

“By the end of 2007, we will have transitioned to Gaia in every PFD,” said Michael Duffy, sales and marketing director for Kokatat. “It appears to be better than PVC—for one thing, it’s softer.”

Curry said that Gaia looks good aesthetically and allows “a good, technical shape to a vest.” But he won’t abandon kapok, polyethylene and EVA foams because he

said those materials are lighter than Gaia, and recycling minimizes their impact on the environment.

While the paddlesports community has highly publicized its move away from PVC, the trend is also part of a larger movement in the outdoor industry, where all types of companies are investing in materials and manufacturing processes that minimize harm to the environment.

THE BIG PICTURE

For **Timberland**, removing PVC from footwear is one part of a grander plan to be as socially responsible as possible. “PVC was part of the checklist of looking at our footwear in general,” said Jay Steere, Timberland’s global category director, outdoor performance. Steere said that most consumers are probably not aware of PVC issues. “But the bigger issue that’s resonating with our mass consumer base is being environmentally responsible and working in sustainable ways,” he said.

Though Timberland’s outdoor performance footwear no longer contains PVC, the company is still trying to remove the stuff from the midsoles and outsoles of a few traditional work boots. “It’s been tough to

find alternatives, and the ones out there are pretty expensive and don’t always meet our performance requirements,” said Betsy Blaisdell, Timberland’s manager of environmental stewardship. “So, we’ve done a lot of materials development work. It’s not an easy problem to solve. But we know where PVC is everywhere in our styles, and most will be gone by 2008.”

In 2006, **Timbuk2**, a San Francisco-based manufacturer of bags and packs, announced that the removal of PVC from its messenger bags would be part of its overall sustainability plan. “This first step in improving our sustainability efforts meant changing many components of our classic, most popular bags,” said Jim Matthews, Timbuk2’s director of product development.

The move away from PVC not only makes sense from a sustainability standpoint, it’s also improving the quality of Timbuk2 bags. “We researched numerous materials which were at least as strong as what we were using, and found that better materials were available,” said Matthews. The liners of Timbuk2 Classic Messenger Bags are now made with TPU (thermoplastic polyurethane), which is just as durable and waterproof as vinyl, but

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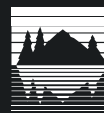
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Timbuk2 Classic Messenger Bag

also more malleable. The switch from PVC has its advantages, but it also presents challenges. For example, there's the financial cost.

THE PRICE YOU PAY

"There's a significant cost increase to move from vinyl to TPU," said Macy Allatt, senior marketing manager for Timbuk2. Allatt said that the average retail cost of Timbuk2's messenger bags would go up about \$10 due to the shift away from PVC and a general increase in the cost of other raw materials.

When sourcing material for dry bags, Outdoor Research said it pays 20 percent to 30 percent more for PVC-free materials. "The cost is substantial, and it requires a commitment to the environment," said Ammi Borenstein, director of design for Outdoor Research. "We've seen PVC seam tapes that are 30, 40, even 50 percent less than the PU (polyurethane) tapes, but we opt to go with the PU tapes because they're higher quality and not an environmental disaster."

Curry of Astral Buoyancy said that using foam without PVC raises his net material

cost by about 20 percent. And the move to Gaia foam caused Kokatat to raise the retail prices of some PFDs 3 percent to 5 percent.

But Duffy of Kokatat said the cost is worth it, noting, "Consumers are more interested in dealing with companies that have an environmental message."

Kokatat and its PFD competitors hope that Gaia foam will serve as an added value that draws consumers, and they're putting Gaia hangtags and logos on new products.

Beyond the outdoor industry, there are signs that mainstream manufacturers and consumers are also growing wise to PVC. In 2005, Hewlett Packard, Microsoft and Kaiser Permanente joined other large corporations in announcing that they would phase out PVC plastic in products and shipping materials.

Perhaps the corporate world is realizing Curry's claim that "it's getting to the point where it almost seems irresponsible to not change." Nevertheless, outdoor companies are still struggling to affect change in certain areas.

TROUBLE WITH T-SHIRTS

"A big category where there is still a lot of PVC used—and where we're trying to remove

it—is T-shirts," said Dumain of Patagonia. Screen printers use inks with PVC because they give printed fabrics a softer hand. "We are working with a number of printers, but there have been a lot of challenges in getting the ink companies to embrace it," she said.

"It's been a challenge to find inks (free of PVC) that we can get at a consistent quality and reliable quantity. The ink companies haven't had enough pressure and interest to put a lot of resources toward the R&D and production," Dumain added.

Timberland is struggling with the same issue. "It might come to a point where, if there are styles with no alternatives, we might have to make a hard call and not go forward with high-density tees," said Blaisdell. "We've gone high up the supply chain to find better materials."

Yes, when it comes to removing PVC, sometimes you have to reach pretty high. Just ask Curry of Astral Buoyancy. His search for a solution led to the treetops of trees in the rainforest of Indonesia. But he and other outdoor leaders say the search is worthwhile.

"Once we clear it up," said Timberland's Steere, "it'll be a big win for us."

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