



BIO-BASED

WORLD QUARTERLY



“ULTIMATELY, BILLIONS OF PAIRS OF SHOES COULD BE MADE WITH THIS MATERIAL...”

HOW ARCTIC BIOMATERIALS HAVE DEVELOPED COMPOSITES INSPIRED BY NATURE.

PROCTER & GAMBLE TO SHARE FRAGRANCE INGREDIENTS AS CONSUMERS PUSH FOR GREATER TRANSPARENCY.

IOWA SEEKS TO LEAD \$250B BIO-CHEMICAL INDUSTRY WITH UNITED STATES' FIRST TAX CREDIT

FROM SEWER TO BREWER, LET'S RAISE A TOAST TO THE FIRST BEER MADE USING RECYCLED URINE!

AND MUCH, MUCH MORE...

BIO-BASED STEPS UP WITH THE FIRST-EVER MOULDED SHOE MADE FROM ALGAE.

By Emily O'Dowd
Bio-Based World News



“THEY’RE LIKE CROCS,” SAYS
CLARK, “BUT YOU CAN
RUN A MARATHON
IN THEM.”



The bio-based world never fails to impress or surprise us. After several generations of experience in the footwear industry, Galahad Clark whose family owns the famous shoe brand, Clark’s, decided it was time to take a risk. With a passion for footwear, Clark created his very own shoe designs made from algae. In 2014 Vivobarefoot was launched to provide an alternative ‘for people who don’t want to wear shoes.’ The thin soles are designed for running and hitting trails so that every nerve in your foot is connected to the ground that you are running on.

The harvested algae biomass is dewatered and dried, polymerised into pellets, then combined with other compounds to ultimately form a flexible, pliable foam. Depending on the formulation and intended application, the algae makes up anywhere from 15 to 60 percent of the finished product, which is said to be similar in quality to traditional petroleum-derived foam. They’re flexible enough to scrunch up into a ball, with a thin white sole that’s topped by a perforated upper. Built for use on dry land, rivers and oceans, the holes are designed to flush water out.

The UK based manufacturer [Vivobarefoot \(@VIVOBAREFOOT\)](#) is collaborating with the San Diego based Bloom Foam to create the updated Ultra III version. Every pair will help re-circulate 57 gallons of filtered water back into natural habitats, and prevent the equivalent of 40 balloons full of CO2 being released into the Earth’s atmosphere. The Bloom Foam is created by harvesting algal biomass from freshwater sources at high risk of algal bloom.

Excess algae in lakes and ponds can choke marine life or threaten the supply of drinkable water. It’s not a small problem: Last year, Florida declared a state of emergency over the plant that is suffocating its coastline. Bloom visits waterways with high algal bloom, collects the algae and uses its moisture to create the foamlike material used in Vivobarefoot’s shoes.

By removing the Algae from marine-systems and replacing the ecologically harmful petrol-based materials used for so many modern products, Bloom Foam is able to directly tackle the problem.

Bloom co-founder Rob Falken explained how the harvesting process works. “We work with any type of blue-green algae,” he said. “Blue-green algae is a polymer, so we basically vacuum it off a lake and dry it using our continuous solar drying process. Solar drying produces a charcoal-like flake, which we pulverize into powder. Once we have a pure powder—ours has no toxins—we make it into what is essentially a pellet, which we injection-mold into a panel and make a fiber out of it.”

“They’re like Crocs, but you can run a marathon in them... Ultimately, billions of pairs of shoes could be made with this material,” concludes Clark. “There’s that much algae in the world.” ■