

THE SHELLWORKS, UNITED KINGDOM

The Story of a Lobster Shell

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Only 9% of all plastics globally are recycled. 92% of all biodegradable polymers require a similar infrastructure to recycling, called industrial composting, which hasn't been successful – when these biodegradable polymers end up in the wrong waste stream they cause just as much harm as traditional plastics.

The Shellworks creates packaging for the cosmetic, beauty, fashion, and retail industries from food waste. Their first products are bottle caps, jars and pots, and secondary packaging (trays, boxes). They make these products from biopolymers that are created from food waste. The Shellworks' secondary packaging products such as trays and boxes are made from Chitosan, an abundant polysaccharide found within shellfish waste.

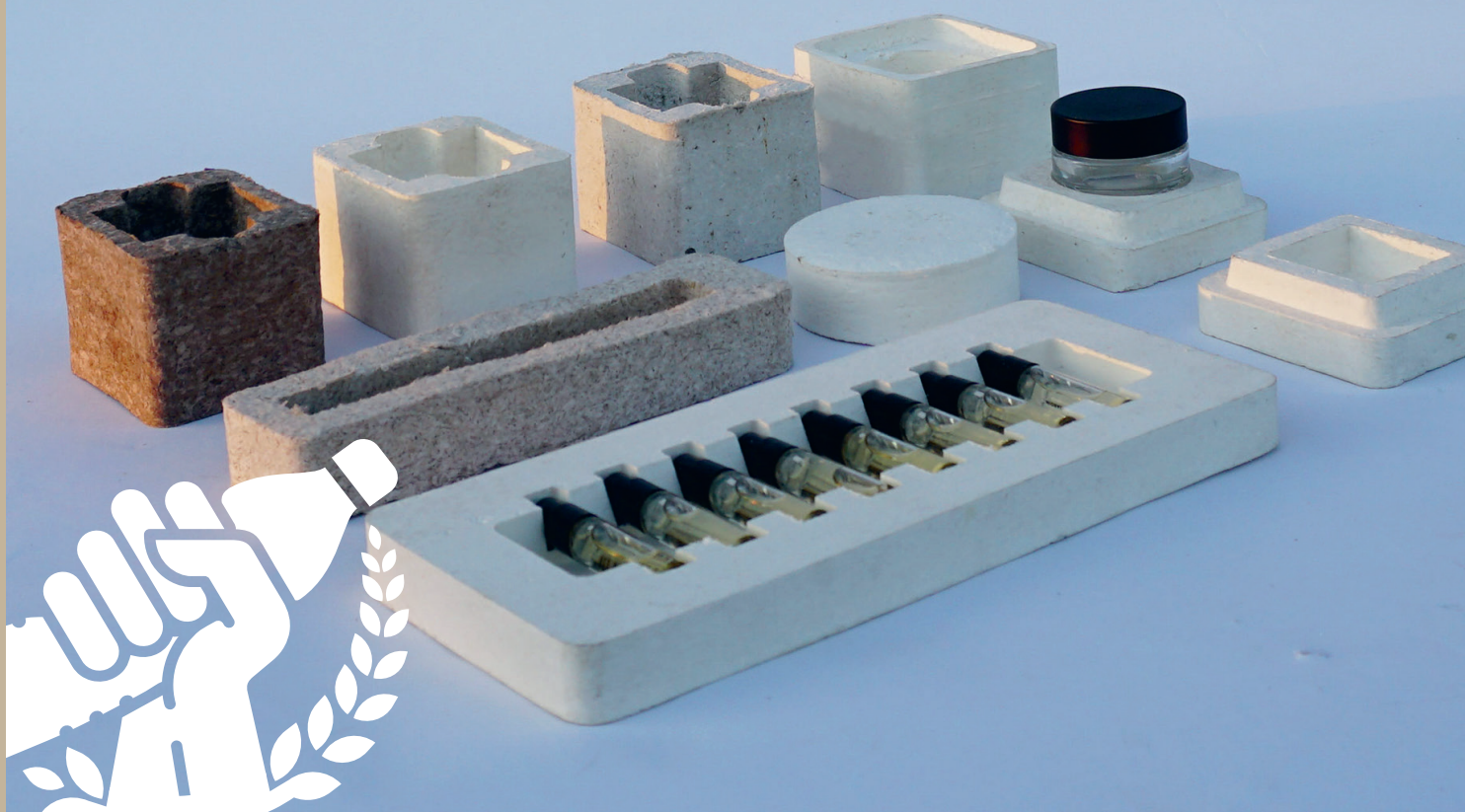
Their value proposition: 1. Waste as input: 90% of the product is made from waste sources such as shellfish waste, food waste, or waste fibers. 2. It does not require consumer behavior change.

The founders aim to create impact by scaling their operations as quickly as possible to replace as much plastic-based packaging as possible.

To measure their impact, the start-up has four key metrics: 1. Measure how much plastic is replaced. 2. Measure how much waste is repurposed. 3. Quantify how much faster The Shellworks material degrades compared to other plastics. 4. Document a Life Cycle Analysis to ensure sustainable decisions are made across the supply chain.

SILVER AWARD WINNER

Insiya Jafferjee, Amir Afshar, Edward Jones,
The Shellworks, United Kingdom



Coffee Talk with Insiya



Please, tell us a little about yourself, who you are, and what you do. I grew up in Sri Lanka and then I went to study in California. I studied Mechanical and Manufacturing Engineering just because I really liked to know how things are made. However, I felt like something was missing and I wanted to do something more meaningful. And so I came to do my master's at the Royal College of Art in London. And that's where I met my two co-founders Edward and Amir and that's how The Shellworks started. Right now, we're working on creating natural alternatives to plastic packaging by extracting a biopolymer from shellfish waste and using that to make plastic alternatives.

How did you come up with the initial idea to use shellfish material? I think we were all interested in looking at how we could make an ecological impact. It was during a group project that we did during our masters where we started looking at waste materials and the deeper we looked into it, we found that fish waste is an area that's overlooked. We decided to focus fully on that area and went from there. The project evolved gradually and we tried to change certain things, or we tried to scale up the manufacturing process. We're driven by essentially being uncompromising in creating materials that will degrade in any environment. We started by collecting shells from restaurants in London and doing experiments in the lab. What we found was the main gap between a lot of these biodegradable polymers and the truly degradable ones, is that they're quite difficult to manufacture.

What are the plans for The Shellworks? We are getting ready for commercial production. We started doing some pilots using new manufacturing methods, which are much more scalable, and so I hope to see our products in the market by the middle of next year. The two biggest areas of impact are cosmetic packaging and food packaging. Because the products interact with our bodies, people are more conscious about making decisions that are good for the environment and also good for them. Additionally, with natural cosmetics, a lot of companies are already shifting to using all-natural ingredients, so sustainable packaging is the last piece of completing that narrative to consumers.

What do you think we can all do to fight the plastic problem on a large scale? It's a massive problem and I think it has to be tackled by a lot of different stakeholders. There's the consumer side of it, which comes through education. A lot of consumers are trying to deal with the problem on an individual basis. There's also the business side of it. There are now many more alternatives coming on the market and greenwashing has been a problem in the past. A lot of businesses are cautious to move to new materials or change the material that they're using right now. There's a bit of a complex process within that, but I think it's required. Finally, there's what the government has been doing, which has been really promising in introducing either tariffs or regulations, especially in Europe.

