

URL: <https://ecorner.stanford.edu/in-brief/sustainability-in-manufacturing/>

If 3D printing is going to be a big industry, says Carbon founder and executive chairman Joe DeSimone, it needs to think ahead of time about environmental stewardship. He describes how a "reversible thermoset" reaction might allow the company to collect, chemically digest, and re-use raw materials.



Transcript

- We now believe we know that 3D printing is gonna be big.. 00:00:09,900 And you know so many businesses don't think ahead about the implications of their technology.. You know when you look about, you know think about Uber and it was gonna be a company that was gonna eliminate congestion in cities and now it's you know it's causing a lotta congestion or you know Juul was gonna help people stop smoking and it started vaping.. And you know encryption was going to protect our privacy and it's now the domain of criminals.. I mean just you have to think at the broad implications and for Carbon, 3D printing's gonna be big.. We have to think ahead of schedule, ahead a time about environmental stewardship, right? So we've been able to now take that as an initiative outta the gates and think about our largest volume resins, Adidas running shoes, dental models, and what can we do to make those recyclable? You know you think about Invisalign like products.. Right, we make a model of teeth and you thermaform a sheet a plastic on it to make an aligner and the 3D printed model is a single use plastic.. It's used for 30 minutes and it's gonna be landfilled for hundreds of years, because it's a thermoset.. Well our technical team has designed a resin that can turn that back to liquid, a reversible thermoset.. And we think we can do that for you know elastomer lattices too..

And so if you can do that, and you have a business model that collects those and doesn't rely on the municipal waste stream, (coughs), right, but you have a business model that you bring those models back, you chemically digest it, turn it back to liquid, and reuse it.. So that's where we're going.. That's a higher calling.. And when every part has got a barcode on there you can actually quantify, maybe for the first time, somebody's environmental footprint or recycling, data driven.. But you also get into lightweight parts, bio-based feed stocks, local for local production, and ultimately avoiding inventory.. You know inventory ties up a lotta capital.. A lotta parts are sitting in air conditioned buildings just waiting to be used.. So you think about on demand inventory and there's a lotta things on the environmental side that are really enabled by having a digital manufacturing platform...