

## Infinite Composites is Creating a New Product Category for Storing Compressed and Cryogenic Gasses



**Matt Villarreal**  
Co-Founder & CEO

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**Interview conducted by:**  
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**CEOCFO: *Mr. Villarreal, what is the overall vision behind Infinite Composites?***

**Mr. Villarreal:** Our vision is to create a world where composite products are as ubiquitous as metal products. To make this vision a reality, we are accelerating space exploration and sustainable transportation by replacing heavy metallic materials with ultra-lightweight composite products like the infinite Composite Pressure Vessel (iCPV). These products can be used for anything as terrestrial as fuel storage for cars and trucks all the way to a propellant depot for fueling rockets on the Moon or Mars. There are an infinite number of applications, but space exploration and sustainable transportation have the biggest pain and are the most impactful for progressing humankind.

**CEOCFO: *What is wrong with the way we store today?***

**Mr. Villarreal:** You have a variety of different types of gas storage technologies that are considered pressure vessels. Basically, they store gasses and cryogenic fluids under pressure. Right now, more than 95% are made from metal.

In weight-sensitive applications, such as space exploration and transportation, each pound of vehicle mass equates to thousands of dollars wasted fuel or additional cargo capacity that would have been transported. With our technology, we eliminated the need for the metal structure in the tank. We replaced the metallic structure with ultra-lightweight composite materials like carbon fiber, which can reduce the weight by up to 90% versus typical all-metal tanks.

**CEOCFO: *Where were some of the challenges in creating this material?***

**Mr. Villarreal:** There are a lot of challenges solving problems at the edge of physics. Neither my cofounder nor I had technical backgrounds when we began Infinite Composites. My background was in business administration and entrepreneurship and my business partner's was in advertising and public relations. Luckily, I always had a passion for solving physics and engineering problems, which is what inspired me to start the company.

The biggest challenge with this type of technology is creating and controlling scalable manufacturing processes because on a fundamental level, we are storing the smallest molecules in the known universe in extreme conditions, and under immense pressure with string and glue. Metal tanks are well studied, and there is a lot of history of manufacturing using

metal in these types of vessels, so there is a lot of baseline knowledge available. Cutting-edge products like the infinite Composite Pressure Vessel are so new that we have had to create many of our standards and processes from scratch.

**CEOFCO: *What is the competitive landscape?***

**Mr. Villarreal:** There are two other companies to my knowledge that have built what are called Linerless Composite Pressure Vessels. Neither has had a huge amount of commercial success and their strategies seem to be more academic. They may not have the entrepreneurial or aggressive approach to selling their products on a large scale, so they will stay small. There are not too many tanks on the market with our exact technology, but other direct competitors who have legacy technologies are quite numerous. Some are multi-billion publicly traded companies.

**CEOFCO: *Who is buying your products now and how are you reaching out?***

**Mr. Villarreal:** The kinds of groups that are buying our products are private companies developing new vehicles and infrastructures like SpaceX, Blue Origin, Lockheed Martin, as well as government agencies like NASA, the U.S. Air Force, and U.S. Army.

We have had an overwhelming number of inbound inquiries from customers around the world. One of our biggest challenges now is being able to respond to all these inquiries promptly. Some of these inquiries can be quite simple, but when we work with large spacecraft programs and their requirements and documentation, the estimates & proposals can become quite complex. It can take a lot of work to respond to some of the requests.

**“We are accelerating space exploration and sustainable transportation by replacing heavy metallic materials with ultra-lightweight composite products like the infinite Composite Pressure Vessel (iCPV). These products can be used for anything as terrestrial as fuel storage for cars and trucks all the way to a propellant depot for fueling rockets on the Moon or Mars.” Matt Villarreal**

**CEOFCO: *When someone reaches out to you can you tell if they are really interested or who is just looking for information?***

**Mr. Villarreal:** For the most part, we can tell who is serious with a few simple questions, but sometimes it can be challenging. The companies that ask the most questions or have the most specific requirements are usually more serious than others. However, because we work with companies ranging from small startups raising their first round or building their first vehicle, to huge companies like Lockheed Martin, the dialogue can be quite different. You can usually tell if they know what they are talking about, they have the budget & the time, and they have a specific use case for it. It is easy to tell when they are serious.

**CEOFCO: *There are two things on your site I would like to ask you about. One, up to 90% lower cost and reduced development cycles. How important are those features?***

**Mr. Villarreal:** Those aspects can sometimes be contradicting. You think you may be able to get either speed, quality, or cost. However, because we eliminated that metal out of the equation, we can get all three. We price our products according to the end-use application, followed by the complexity of the requirements, so a 90% reduction is not always achieved.

As the demand keeps creeping its way up, our customers are willing to pay more to get their project expedited to get certain customizations completed. We found that the terrestrial and commoditized applications are much more price-sensitive, and the more cutting-edge space-type applications are more focused on performance, so the pricing and timelines are not a constraint for those customers.

**CEOFCO: *Do you have any standard products or is everything custom?***

**Mr. Villarreal:** We do have existing designs that we offer our customers. Currently, we do not have any tanks that can just be instantaneously purchased by anyone, but that is something we are looking to do in 2022. It just takes a lot of testing and certification, as well as a lot of resources and capital to get those certifications.

Mostly, we cater to our customers' specific requests. Often, they are niche products that need to be perfectly fit into a very tight space in a spacecraft or similar vehicle. Custom-built tanks are most of our current projects. Our goal in 2022 is

to produce at least five designs that are certified and available for anyone to just come and buy off-the-shelf from our website.

**CEO CFO: Do you need to maintain an inventory of parts? Are there supply chain problems for you today?**

**Mr. Villarreal:** Most of our current manufacturing is just-in-time, so we try not to hold much inventory until products are being ordered or projects are kicking off. Some of our resins and other components have a somewhat limited shelf life, so we do not keep a huge stock of them. We order some materials that are regularly used in higher quantities. We are starting to get some push-back from suppliers on timelines and availability of certain materials, but it has not affected us too much. We had a couple of scares with our vendors where we had no idea what the timeline was to get materials in, and we were on a time crunch. That was a little scary, but it resolved within a couple of days. We have been lucky to not have any major disruptions with our supply chain.

**CEO CFO: Are you seeking funding, investment, partnerships, as you look to grow?**

**Mr. Villarreal:** We are constantly entertaining all sorts of strategic opportunities. We launched an equity crowdfunding campaign on [Spaced Ventures](#), where both accredited and non-accredited investors can buy equity in the company for as little as \$100, democratizing investment in space.

We are raising capital from institutional investors as well this year, and also exploring a few different partnership opportunities.

**CEO CFO: Would you tell us about recognition in the Forbes Next 1000?**

**Mr. Villarreal:** Being on a Forbes list has been a dream of mine since I was a kid, so I was very happy to be listed in the first cohort of the Next 1000. I am very honored to be considered one of the top entrepreneurs redefining the American Dream. It was kind of a spontaneous opportunity where someone reached out to me via email, and I let it sit for a while. I did not fill it out, but closer to the deadline, I got a lot more motivated. It was an exciting opportunity. Once I was listed, we gained a lot of publicity and received a lot of interest from people who wanted to hear our story, as well as investors and customers. It has been great.

**CEO CFO: What surprised you as the company evolved?**

**Mr. Villarreal:** One of the things that surprised me the most is the challenges that come with managing a growing team, especially a team with many incredibly intelligent engineers and technical experts. Keeping everyone moving in the same direction when you have a lot of smart, creative people can be a major struggle without the proper structure and processes.

Another surprise was how our go-to-market strategy evolved. We thought it would be much harder to get into the space and aerospace industry, but soon after we completed our first project, we began receiving frequent inquiries from space companies and NASA on our website. They pulled us into the market rather than us deciding to go into it. In 2016, we decided it was a much more attractive opportunity for a small company, so we formally pivoted to space and aerospace. We never thought it was going to be easy to get into it, but the product-market fit is great, and the customer need is enormous.

**CEO CFO: Why pay attention to Infinite Composites; what sets the company apart?**

**Mr. Villarreal:** We are creating a new product category for storing compressed and cryogenic gasses, and a lot of people do not truly understand how ubiquitous products are in our everyday lives on earth and in space. Everything in space must be pressurized for people to travel, live, and breathe, all in pressurized environments. On Earth, the importance of pressure vessels is becoming more mainstream with alternative energy like hydrogen and natural gas ramping up. The tanks are one of the most critical components of any of these systems and one of the biggest. They are already ubiquitous in a lot of areas, but they are becoming more and more critical to the development of a lot of large industries.

