

# NASA Announces New Product From Licensee HyPerComp Engineering High-Pressure, Filament-Wound, Composite Vessels



## Benefits

- High permeation barrier to natural gas and helium
- Excellent strength due to graphite/epoxy structural support layers
- Compatible with chemically aggressive, corrosive, and cryogenic fluids
- Excellent resistance to extreme temperature and pressure
- High leak and crack integrity
- Resistant to abrasion, fire, and impact

## Applications

- Alternative-fuel motor vehicles (e.g., oxygen and hydrogen tanks in fuel-cell vehicles)
- Fuel tanks for reusable launch vehicles, upper-stage launch vehicles, and other spacecraft
- Offshore drilling, oil production, and petroleum refineries
- Storage for cryogenic fluids, pressurant gases, and fossil fuels
- Chemical processing and pharmaceutical manufacturing
- Fuel tanks for over-the-road tankers—more fuel can be carried for the same weight

HyPerComp Engineering, Inc., has licensed a suite of NASA technologies for strong, lightweight composite tanks, and will manufacture four different sizes of specialty vessels. These high-pressure vessels are aluminum lined, filament wound and composite over-wrapped, with high impact and fire resistant properties.

Developed by researchers at NASA's Marshall Space Flight Center, the enabling technology offers an attractive combination of improved performance at lower cost. This technology enables the production of strong, lightweight, adaptable, uniquely shaped, insulated, chemically resistant, cryogenic tanks, vessels, and pipes while reducing fabrication cost.



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## NASA-Patented Technology

NASA Marshall's composite tank and pipe portfolio consists of five technologies. Figure 1 presents the basic configuration of three of the technologies. Figures 2 and 3 show the separate configurations of the other two technologies.

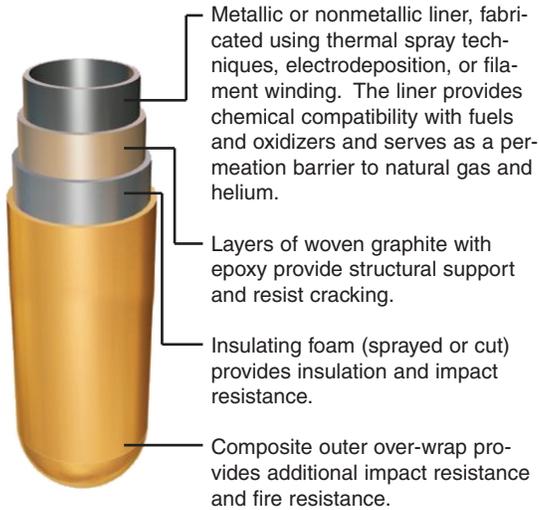


Figure 1: Basic layered structure of composite technologies

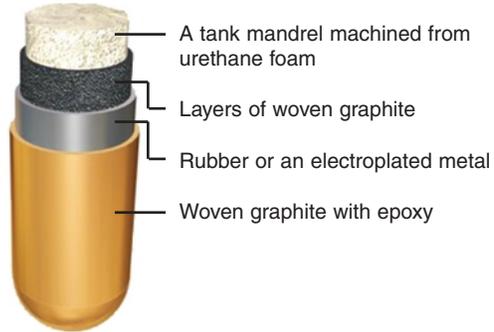


Figure 2: This configuration provides structural support, cracking resistance, and chemical compatibility with an increased resistance to permeable fluids.

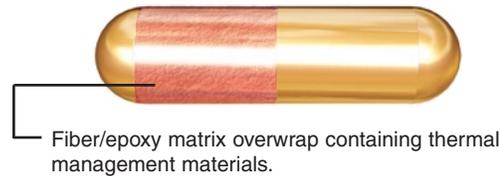


Figure 3: This configuration provides increased abrasion, impact, and fire resistance.

## HyPerComp Engineering, Inc.

Located in Brigham City, UT, HyPerComp Engineering provides a range of services—including product design, structural analysis, manufacturing assistance, and testing—to the composite materials and plastics industry.

Hypercomp Engineering is forming a manufacturing joint venture with Catalina Cylinders, a division of Aluminum Precision Products, which envisions using these NASA technologies in future applications. Aluminum Precision Products is a major manufacturer of structural military and aerospace aircraft components. HyPerComp Engineering licensed this technology from NASA with the support of RTI International.

## For More Information

The successful licensing of this technology resulted from NASA's technology transfer program. The program seeks to stimulate commercial use of NASA-developed technologies. If your company is interested in NASA's technology transfer program or high-pressure filament-wound tanks, please contact

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