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Manufacturing and testing of lightweight, liner-less all-composite tanks for storage and transportation of CNG

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MANUFACTURING AND TESTING OF LIGHTWEIGHT, LINER-LESS ALL-COMPOSITE TANKS FOR STORAGE AND TRANSPORTATION OF CNG

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Compressed natural gas is one viable fuel source to replace gasoline or diesel in cars, trucks and other passenger vehicles. There are 5 types of tanks that can be used for storage and transportation of CNG. Out of these 5 types, 3 types of tanks have some form of composite structure introduced into the tank construction. Additionally, the type V tank is an all-composite construction, which has not been introduced into the NGV market in a significant manner. In this presentation, we will describe the manufacturing and testing of type V all-composite tanks by the team formed between a small business and Oklahoma State University. The composite tanks were tested successfully using the department of transportation FMVSS-304 test methodology. The all-composite tanks were also assembled into a portable fueling skid and is currently in use. A comparison of the all-composite tanks and the manufacturing technology suggested that it is cost and performance competitive with similar technologies, while saving 90% weight and not paying any cost penalties.