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## **Technical Evaluation of Current Hydrogen Storage Technologies for Vehicles**

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**Abstract:** With the decline of global fossil fuel reserve and the increasing demand for energy, there is a sincere need to develop alternative fuels for automobiles. Hydrogen is an environmentally friendly and renewable energy source. It has been considered an ideal fuel for replacing fossil fuels. Currently, Liquid Hydrogen (LH<sub>2</sub>) system (with a density of 51 kg m<sup>-3</sup> and 14 wt.%) is close to practical use. However, the cost of using LH<sub>2</sub> as a transportation fuel is nearly twice that of Gaseous Hydrogen (GH<sub>2</sub>), due to the liquefaction process, increased fuel transportation costs and more complex manipulation of the fuel. If the intention is to use hydrogen on a large scale, storage is a key problem. Researchers have shown that hydrogen could be stored as: compressed gas, cryogenic hydrogen and metal hydrides. However, the number of alternative methods is growing, including the use of carbon novel materials, chemical hydrides and glass microspheres. This are also being considered. The present is study reviews the different solutions for hydrogen storage and highlights the promising technology for vehicle use.

**Key words:** Hydrogen storage, cryogenic, hydrides, compressed gas

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