

Breakthrough in hydrogen storage

A group of researchers from Impco Technologies Inc., Lawrence Livermore National Laboratories and Thiokol Propulsion have successfully tested a high-performance prototype hydrogen storage cylinder designed for use in fuel cell-based vehicles. A new mass performance record of 11.3 per cent hydrogen storage by weight was achieved – the highest ever demonstrated.

On-board direct hydrogen storage is simple, cost-effective, durable and safe for automotive use and eliminates the need for on-board fuel reformers, which are expensive, complex and physically large in size and generate emissions. The new compressed hydrogen storage device allows for more efficient storage compared to alternatives such as metal hydrides (1.5-3 per cent by weight at room temperature) or liquid hydrogen (8 per cent by weight). This storage technology is intended for passenger vehicle applications, at maximum operating pressures of 350 bar with a safety factor of 2.25. The safe gaseous hydrogen pressure vessel technology can reversibly store more energy per unit mass than any other non-nuclear technology. *Contact: Mr. Alan Niedzwiecki, Impco Advanced Technology Centre, the United States. Tel: +1 (949) 3994 552; Or Mr. Andrew Weisberg, Lawrence Livermore National Laboratory, the United States. Tel: +1 (925) 422 7293; Or Mr. Andy Haaland, Thiokol Propulsion, the United States. Tel: +1 (435) 8636 373.*