



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project HyCOMP

Enhanced Design Requirements and Testing Procedures for Composite Cylinders intended for the Safe Storage of Hydrogen

Hydrogen storage is a key enabling technology for the use of hydrogen as an energy vector. To improve volumetric and gravimetric performance, carbon fiber composite cylinders are currently being developed. However, current standards governing the design, qualification and in-service inspection of carbon fiber composite cylinders do not allow cylinder design to be optimized. In particular, safety factors for cycle life and burst pressure ratios appear to be conservative, which results in the cylinders being overdesigned and thus costly. Furthermore, the requirements in these standards are often not based on degradation processes in composite materials but have been adapted from standards covering metallic cylinders. To address these issues, HyCOMP will conduct pre-normative research on high-pressure type III and type IV composite cylinders for hydrogen storage and transport for automotive, stationary and transportable applications. The project will generate all the data necessary to develop a comprehensive scientific and technical basis for fully justifying as well as improving the full set of requirements defined for ensuring the structural integrity of the cylinders throughout their service life, covering design type approval, manufacturing quality assurance, and in-service inspection. The outcome of the project will be recommendations gathering broad support for improving the applicable European and international standards and regulation on high-pressure hydrogen cylinders for automotive, transport and stationary applications, as well as defining a strategy for implementing these changes. These recommendations will include performance-based design requirements, and improved procedures for type testing, batch testing and in-service inspections.

Project Information

Type of project : Research

Timing : 01/01/2011 > 31/03/2014

Project website: <http://www.hycomp.eu/>

Project Budget : 3.642.153 €

Funding

European Union through FCH JU: [Grant agreement 256671 - CORDIS link](#)

Project partners

Coordinator :[L'AIR LIQUIDE S.A](#)**Partners :**[MINES ParisTech/ARMINES PERSEE](#)[CCS Global Group Ltd.](#)[CEA - Commissariat à l'énergie atomique et aux énergies alternatives](#)

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JRC - JOINT RESEARCH CENTRE- EUROPEAN COMMISSION

AYMING

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Sub project categories

Research

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