# Hydrogen Europe:
# European Hydrogen & Fuel cell Project Database

## Project HYPACTOR

Pre-normative research on resistance to mechanical impact of composite overwrapped pressure vessels

Hydrogen is expected to be a highly valuable energy carrier for the 21st century as it should participate in answering main societal and economical concerns. However, in order to enable its extensive use as an energy vector, it is of primary importance to ensure its societal acceptance and thus its safety in use. To this aim, hydrogen storage and transportation must be secured. In particular today, the knowledge on composite overwrapped pressure vessels' (COPV) behaviour when submitted to mechanical impacts is limited and existing standards are not well-appropriate to composite materials. The main objective of HYPACTOR is thus to provide recommendations for Regulation Codes and Standards (RCS) regarding the qualification of new designs of COPV and the procedures for periodic inspection in service of COPV subjected to mechanical impacts. To this aim, experimental work will be combined with feedback from experience in order to: - Understand and characterize the relationship between the impact, the damage and the loss of performance of COPV at short term and after further pressure loads in service; - Develop models to predict at least short term residual performance of the impacted COPV; - Assess relevant (non-destructive) inspection procedures and define pass-fail criteria for COPV in service subjected to mechanical impacts. Different applications will be considered: stationary application, transportable cylinders, bundles and tube trailers. The HYPACTOR project brings together partners with complementary expertise: experts in testing processes for compressed gaseous hydrogen (CGH2) storage in full composite vessels (CEA, WRUT), a gas company operating CGH2 technologies (AIR LIQUIDE), a pressure vessel supplier (HEXAGON), experts in characterization, particularly non-destructive testing (ISA, WRUT) and experts in modelling (NTNU), leading actors in international RCS development (HEX, AL, ISA, CEA), and an expert in European R&D collaborative project management (ALMA).

## Project Information

**Type of project :** Research
**Timing :** 01/04/2014 > 30/06/2017
**Project website:** http://www.hypactor.eu
**Project Budget :** 4.049.293 €

## Funding

European Union through FCH JU: **Grant agreement 621194** - **CORDIS link**

## Project partners

**Coordinator :**

CEA - Commissariat à l'énergie atomique et aux énergies alternatives

**Partners :**

L'AIR LIQUIDE S.A

NTNU - Norwegian University of Science and Technology

HEXAGON RAUFOSS AS

INSTITUT DE SOUDURE ASSOCIATION

POLITECHNIKA WROCLAWSKA

AYMING

## Sub project(s)

### Sub project 1

**Country:** France

**Address:**

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**Sub project categories**

Research

Project Id: 1007

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