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Tunniste/teema:	1.09 / Vähähiilinen energia
Projektin nimi:	Hydrogen Contaminant Risk Assessment (HyCoRA)
Vastuutaho/vastuuhenkilö:	Jari Ihonen
Yhteistyösapuolet:	JRC, CEA, SINTEF, Protea, Powercell Sweden
Liitynnät (ml. ohjelmat):	Transmart
Aikataulu:	1.4.2014-31.3.2017
Budjetti:	3 906 912 € (VTT: 941 401 €)
Rahoittajat:	EU (FCH JU), VTT

Päivitys:

Kommentit:

Tiivistelmä

In HyCoRA project, a strategy for cost reduction for hydrogen fuel quality assurance QA is developed and executed.

For developing this strategy, hydrogen quality risk assessment is used to define the needs for hydrogen impurity gas analysis, system level PEMFC contaminant research as well as needs for purification needs in hydrogen production, especially produced by steam methane reforming (SMR).

The use of qualitative and quantitative risk assessment enables identification of critical needs for gas analysis development and guides the research work on those issues, which require most attention. The development of quantitative risk model enables implementation of data from other parallel activities in USA, Japan and Korea.

The measurement campaigns in hydrogen refuelling stations, as well as in SMR production units, provide quantitative data, which can be used for identification of canary species, when analysed with help of quantitative risk assessment.

Essential part of the HyCoRA project is hydrogen contaminant research in PEMFC system level. The research is performed in down-scaled automotive fuel cell systems, which can replicate all the features of full-scale automotive fuel cell systems, including the change of gases in the anode and cathode during the start-stop cycling. The contaminants and levels to be studied are, excluding obvious carbon monoxide, determined using risk assessment with help of automotive advisory board.

The main objective of HyCoRA project is to provide information to lower reduce cost of hydrogen fuel QA. However, it will also provide recommendations for revision of existing ISO 14687-2:2012 standard for hydrogen fuel in automotive applications.