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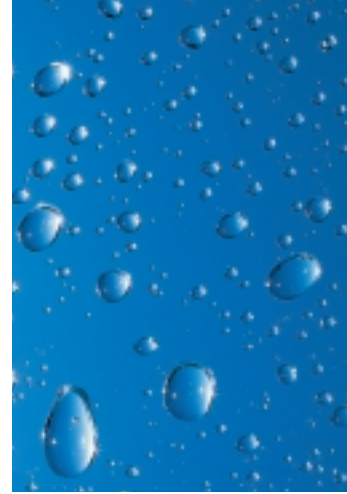
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Industrie Service

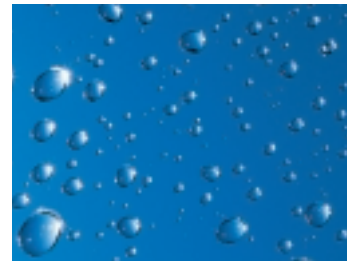


www.tuev-sued.de

CFD Consultants

TÜV Industrie Service GmbH
TÜV SÜD Group

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Industrie Service

**Competence.
Certainty.
Quality.**

Hydrogen and fuel cell applications are expected to have a great future. However some of them having been initiated in high spirits come to an early end due technical and financial hurdles. Yet such failure can be prevented if these projects are started in a professional way.

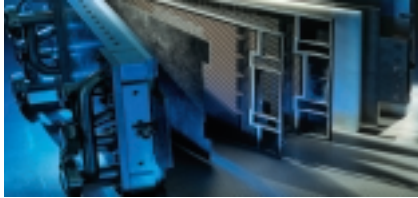
Preventing the Big Bang

Successful realisation of hydrogen projects

Bildnachweis: www.h-ebc.com

TÜV Industrie Service GmbH
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Why many companies fail to implement hydrogen and fuel cell technology

Although hydrogen has been acknowledged as an important source of energy for many years it has only really been employed by space travel. However, over the last twenty years other sectors of the economy, in particular the automotive industry, have become aware of this source of energy.

More and more companies are now implementing hydrogen technologies. As the properties of hydrogen and possible hazards require specific component design and safety features, engineers are confronted with an apparently impenetrable jungle of standards and regulations. Moreover they are often initially unaware that there is a knowledge deficit regarding applicable material and technologies. And finally, approval procedures and the complex nature of the manufacturing processes lead to high cost risks in research and development. Many companies therefore withdraw from hydrogen projects before completion and thus lose a lot of money.

Note:

Hydrogen should not be underestimated and the same applies to hydrogen projects



Successful hydrogen involvement

TÜV Industrie Service GmbH is an internationally operating company within the TÜV SÜD Group and has successfully accompanied numerous hydrogen projects and applications. Being familiar with regulations and safety provisions, we support you in a professional manner. TÜV Industrie Service GmbH employs highly experienced staff and external suppliers thus sharing interdisciplinary specialist knowledge.

Make use of our experience in gas and process technology for your portable, mobile or stationary hydrogen application.

Your benefit: During project development and realisation you will only have one contact person. Prior to the start of your hydrogen project you will learn everything about what it takes to make it successful. You do not have to look for sub-contractors for necessary calculations as we work closely together with such specialist businesses. All this saves time and money.



Range of services:

Development support services

- ▶ Engineering/Design (CAD, FEA, CFD)
- ▶ Development tests (validation, verification)
- ▶ Risk and availability analysis
- ▶ Consulting

Audit and Certification

- ▶ Safety engineering design
- ▶ Components and system
- ▶ In line with international regulations

Training

- ▶ For development engineers, system integrators and users
- ▶ During production, testing and operation
- ▶ During implementation for a certain application

Our partner: CFD Consultants GmbH

The consistent application of computational fluid dynamics (CFD) results in efficient, safe and above all certifiable developments. A significant reduction of cost and time is achievable particularly with regard to safety analyses.

In this area TÜV SÜD works closely with CFD Consultants GmbH who are specialised in the flow analysis of liquid, gaseous and multiphase media. Their customers are in the automotive industry and process technology, mechanical and medical engineering and aerospace industries. This wide range of activities implies an integrative way of thinking across all industries.

