

Product safety

28 March 2022

TÜV SÜD: Cutting-edge hydrogen laboratory opened

Munich. Hydrogen is a central component of the energy transformation. As a storage medium, it has an essential role to play in reducing our reliance on imports of resources and electricity. However, the use of hydrogen places high demands on the component and product safety of tanks, valves, lines, sensors, pressure regulators, fuel cells and distribution systems. Catering to these needs, TÜV SÜD opened a cutting-edge hydrogen laboratory last year and has continuously expanded its capacities. The testing, inspection and certification (TIC) experts at the organisation support companies with a state-of-the-art test laboratory from design validation and development through material selection and qualification to type approval and certification. The experts' knowledge of all country-specific relevant standards and guidelines ensures successful national and international market access.



“Our laboratory, based in Garching near Munich, offers all capabilities necessary to assess the suitability and safety of components and systems for hydrogen”, says Martin Sekura, Business Development Manager Hydrogen at TÜV SÜD. At the laboratory, test items undergo testing for their resistance to pressure cycles and leak tightness as well as their behaviour in throughflow mode or in the event of overpressure or bursting. The experts also

examine permeation and hydrogen compatibility. Hydraulic testing, environmental simulation and testing of electromagnetic compatibility are available in further TÜV SÜD test laboratories.

One-stop shop for gaseous and liquid hydrogen

Describing the advantages of the new laboratory, Martin Sekura explains, “What makes the new test laboratory so unique is not only the cutting-edge equipment on offer, but also the possibility of testing

the suitability of all types of materials and components for use with both gaseous and liquid hydrogen and across all industries.” This includes components of stationary fuel cells, power stations and industrial plants as well as those of vehicle tanks and mobile fuel cells. Key pilot customers are a major sealing gasket manufacturer, a leading supplier of composite pressure vessels and one of the largest automotive suppliers. The laboratory in Garching is one of the few facilities in the world to offer cost-efficient, reliable and high-quality qualification and benchmark testing for metals and non-metals. Analysis of the hydrogen compatibility and permeation of materials is one of the focal areas of the new TÜV SÜD laboratory. Component testing in the lead-up to type approval and certification also forms part of the laboratory’s service portfolio.

H₂ roadmap: the second of three stages of expansion is under way

The second stage of expansion of the test laboratory is currently under way and will be completed by the end of the year. “In the course of our expansion, we will install new capacities for environmental and EMC testing at full hydrogen pressure at our locations in Straubing and Mannheim”, explains Martin Sekura. In addition, we will also establish new capacities in Garching for activities such as expanded load-cycle analyses and testing at extreme flow rates. In the last stage, scheduled for 2024, we will then build various test capacities at a new laboratory location, including facilities for testing tank systems of heavy-duty vehicles and from the industrial sector. “With these expansion measures, we will be excellently positioned to address the dynamically developing hydrogen markets.”

More detailed information about hydrogen-related services at TÜV SÜD can be found at:

- <https://www.tuvsud.com/de-de/branchen/mobilitaet-und-automotive/automotive/pruefloeuesungen-und-compliance-services/wasserstoffpruefung>
- <https://www.tuvsud.com/en/themes/hydrogen/hydrogen-services-that-enable-safety-for-your-ideas>

Note for editorial staff: The press release and pictures are available on the Internet at www.tuvsud.com/newsroom.

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