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VDMA Process and Hydrogen Digest

Foreword

Dear Reader!

Energy independence and security are increasingly coming into focus on a global level. At the same time climate neutrality remains as important as ever. If you want to export in the future, you have to produce in a climate-neutral way, otherwise you risk being de-listed by your customers.

With their process technology plants and components VDMA members enable the way to a climate-neutral future. The mechanical engineering industry already today supplies technologies that generate eFuels for trucks and airplanes, that generate, transport and store biogas or biofuels, or that produce green ammonia or methanol. This publication gives an insight how the goal of a climate-neutral future can be achieved with solutions for LNG and natural gas infrastructure such as power-to-X, with electrolysis or hydrogen technology for transport as well as with heat recovery.

In addition to many solutions, there are still open questions such as: Which climate-neutral fuels will become established in shipping? How will green hydrogen be transported intercontinentally in the future? Here Ammonia and Methanol seem to be the vectors of choice for a large-scale ramp-up.

Some answers to open questions can be found in this VDMA Process and Green Hydrogen Digest Newsletter. In addition to editorial articles, the publication features the VDMA product matrix, company profiles and contact details of leading solution providers. This VDMA publication is also aimed at experts from Engineering, Procurement and Construction (EPC) as well as machine builders, but also to the general public that wants to find out how the energy transition can succeed.

Ragnar Strauch
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CADFEM APAC: Accelerating the Hydrogen Transition Through Simulation-Driven Digital Engineering

Engineering Legacy with a Global and German Backbone

Dr. - Ing Madhukar Chatiri
CEO, CADFEM APAC

CADFEM APAC is part of the globally recognized CADFEM Group, along-standing Ansys Elite Channel Partner since 1985. Headquartered in Germany, CADFEM has expanded to 40+ countries, becoming a leader in digital engineering. CADFEM APAC carries this legacy forward by delivering German precision, innovation, and digitalization capabilities to APAC's fast-evolving industrial landscape.

This synergy of global expertise and localagility gives companies access to trusted simulation tools and world-class methodologies, while all owing forregion-specific problem-solvin gwith speed and flexibility.

Delivering End-to-End Simulation Excellence

At CADFEM APAC, we translateen gineering complexity into physics-based simulation models that provide actionable insights. Our domain expertise spans fluid dynamics, thermal analysis, structural mechanics, electromagnetics, electrochemistry, and photonics—supporting innovation across industries like automotive, aerospace, energy, high-tech, and healthcare.

More than a software provider, we offer acompletee cosystem: consulting, implementation, training, IT integration, and strategic guidance. Our goal is to empower engineers to solve their most challenging problems through simulation-driven design.

Our services combine multiphysics depth, system-level tradeoffs, and domain-specific expert is einhealth care, chemicals, and advanced Industry 4.0 technologies. We integrate Python automation, cross-domain learning, and global exposure to help teams innovate faster and smarter.

Advancing Digital Engineering with AI/ML and Digital Twins

CADFEM APAC incorporates AI/ML and Digital Twin technologies into simulation workflows to create intelligent, connected systems. Surrogate models trained on simulation data speed up design exploration and enable predictive maintenance. Using Ansys Twin Builder, we create digital twins that merge sensor data with physics-based models, offering real-time performance in sights.

Enabling Innovation in the Process Industry

We support process sectors like chemicals, oil & gas, and energy by simulating heat exchangers, pressure vessels, combustion chambers, and multiphase systems. These simulation simprove safety, efficiency, and emissions performance. We help customers perform functional safety assessments and ensure regulatory compliance.

Catalyzing the Hydrogen Economy

We are playing a transformative role in the global hydrogen transition by supporting the entire hydrogen value chain with simulation-led in novation. In hydrogen production, we help improve the durability and efficiency of electrolysis and steam methane reforming by simulating he attransfer, fluid flow, and electro chemical reactions.For hydrogen storage and distribution, we simulate and validate tank and pipeline designs while addressing challenges such as hydrogen embrittlement, pressure containment, and thermal insulation. We further support utilization technologies by modeling thermal management, emission behavior, and performance in fuel cells and combustion systems. These capabilities directly contribute to scaling green hydrogen ambitions by reducing costs and enabling safer, more reliable infrastructure.

AV is ion for Clean Energy

Simulation is apowerful catalyst for clean energy innovation. As industries adopt low-carbon strategies, simulation accelerates time-to-market, improves system reliability, and reduces development costs. CADFEM APAC is committed to this transition by driving low-carbon solutions across regions, supporting net-zero goals through collaboration between industry, research institutions, and government. We will continue to position hydrogen as a corner stone of sustainable energy by partnering within dustries to builda cleaner, smarter future.