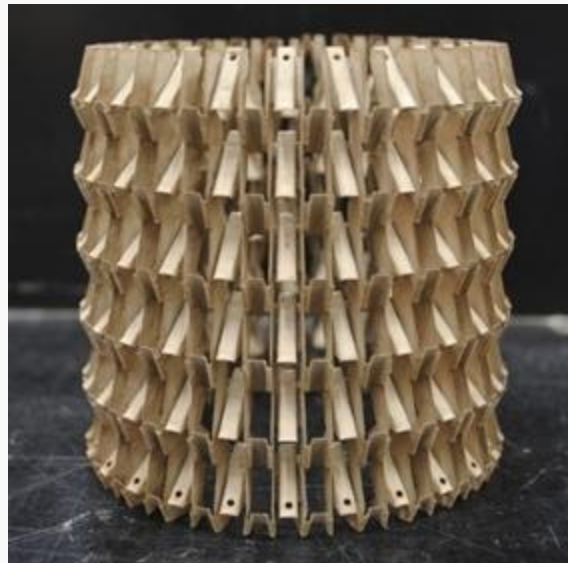


Honeywell and ZoneFlow Reactor Technology to Collaborate on Breakthrough Structured Catalyst for Hydrogen Production



(Photo: Business Wire)

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DES PLAINES, Ill. & WINDSOR, Conn.--([BUSINESS WIRE](#))--Honeywell (NASDAQ: [HON](#)) and ZoneFlow Reactor Technologies, LLC today announced a joint agreement to commercialize ZoneFlow™ Reactor Technology. This technology promises to provide a step-change improvement in the efficiency and carbon intensity of steam methane reforming for the production of hydrogen. When coupled with Honeywell H₂ Solutions' carbon capture for hydrogen production, the ZoneFlow technology will make low-carbon hydrogen production more efficient and less expensive.^{1,2}

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The ZoneFlow Reactor, a structured catalyst module (pictured to the right) that replaces conventional catalyst pellets in SMR tubes, provides far superior heat transfer and pressure drop performance.² UOP and ZFRT will cooperate in conducting reactive testing in ZFRT’s large-scale pilot plant at Université Catholique de Louvain in Louvain-la-Neuve, Belgium. The reactive testing will validate the expected 15% increase in throughput over conventional catalyst pellet systems. Results from the pilot plant testing are expected to be available by mid-2022.

“We see the ZoneFlow Reactor Technology as a major breakthrough in steam methane reforming,” said Laura Leonard, vice president and general manager, Honeywell UOP Process Technologies. “The much higher throughput possible with the ZoneFlow Reactors will mean significant capital savings for new SMR plants and higher productivity for existing plants. The additional opportunity to reduce the steam requirements to the steam methane reforming process will reduce its energy demands and overall impact on plant CO₂ emissions.”

“This collaboration with Honeywell UOP creates the strongest possible team for the commercial validation and offering of the ZoneFlow Reactor Technology,” said Bruce Boisture, President of ZFRT. “UOP’s broad expertise in catalysts and catalytic processes, coupled with its well-established PSA and carbon capture technologies, make it an ideal technical and commercial participant in this advanced development project. This partnership will provide the technical and financial resources to help demonstrate the breakthrough impact and productivity of the ZoneFlow Reactor Technology.”

Honeywell UOP (www.uop.com) is a leading international supplier and licensor of process technology, catalysts, adsorbents, equipment, and consulting services to the petroleum refining, petrochemical, and gas processing industries. Honeywell UOP is part of [Honeywell's Performance Materials and Technologies](#) strategic business group, which also includes Honeywell Process Solutions (www.honeywellprocess.com), a pioneer in automation control, instrumentation and services for the oil and gas, refining, petrochemical, chemical and other industries.

Honeywell (www.honeywell.com) is a Fortune 100 technology company that delivers industry specific solutions that include aerospace products and services; control technologies for buildings and industry; and performance materials globally. Our technologies help everything from aircraft, buildings, manufacturing plants, supply chains, and workers become more connected to make our world smarter, safer, and more sustainable. For more news and information on Honeywell, please visit www.honeywell.com/newsroom.

ZoneFlow Reactor Technologies, LLC (www.zoneflowtech.com), a privately held company, is a developer of innovative reactor and process technology for the steam methane reforming industry.

Note 1 - Based on an internal Techno Economical Analysis using Honeywell UOP developed simulation models, Unisim simulation model, standard PDD tool and optimization. Key variables include cost of CO₂ captured, cost of CO₂ avoided, stream composition, CO₂ delivery requirement (pressure, purity, phase), utility price set, price of H₂ and geographic location.

Note 2 - ZoneFlow Reactor Technologies has established the heat transfer and pressure drop properties of ZF Reactors, relative to conventional catalyst pellets, through rigorous experimental testing that has been reported most recently in Chemical Engineering Journal. <https://en.x-mol.com/paper/article/1338397261714743296> . Simulations of steam methane reformers with ZF Reactors and pellets, using Aspen© process software, reactor and reaction models developed by Prof. Juray De Wilde (Materials and Process Engineering Dept., Université Catholique de Louvain, co-author with Prof. Gilbert Froment of *Chemical Reactor Analysis and Design*, 3rd Edition (Wiley)), and SMR cost data, were then used to compare the efficiency (including level of carbon emissions) and cost of ZF Reactors and conventional catalyst pellets.

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