



UniSieve unlocks decarbonising opportunity for heavy industry as it lands \$5.5m seed funding round

UniSieve's high-precision membrane solution decarbonizes heavily emitting industries by drastically reducing heating and cooling in chemicals and improves the carbon capture. Today, 10-15% of the world's energy consumption accounts for separation and purification, a key process step to most industries.

Zurich, Switzerland - 26th April 2023; Heavy industries such as chemical or energy companies are among the heaviest carbon emitting sources yet they are broadly committed to the Net-Zero goals of the Paris Agreement. Helping them achieve their targets Cleantech company [UniSieve](#) has identified a unique and innovative opportunity for them to progress and is today announcing a \$5.5m seed funding round to pilot and expand production capacities.

This oversubscribed funding round saw participation from a venture capital consortium including the Amadeus APEX Technology Fund, Wingman Ventures, Ciech Ventures and Zürcher Kantonalbank.

The biggest challenge facing heavy industries is to create energy efficiencies in their legacy, highly energy-intensive assets worth billions of dollars. For example, in chemical plants a major energy drain is the chain of separation and purification steps because it still depends on highly energy-intensive thermal processes. UniSieve is seeking to solve this significant energy drain to help these industries get closer to Net-Zero goals.

UniSieve stands for "universal sieving." Without heat or cold, UniSieve's membrane-based separation solutions can separate chemicals, energy carriers, or CO₂ from flue gas based on size exclusion. The solution bypasses the needs for heating or cooling through sieving membranes that can reduce the energy needed for separating and purifying molecules by up to 90%.

Samuel Hess, co-founder and CEO of UniSieve commented: "Our solution is addressing a major emissions cause and its potential for energy and emission reduction is significant for our planet. In essence we say stop boiling and start sieving to end energy intensive distillation. The concept of sieving works as simple as a coffee filter holding back the coffee powder from an espresso. However, it gets a little tricky when separating chemicals that vary in size by a fraction of an angstrom only (1 angstrom equals one-tenth of a nanometer). To do so, the sieve must be extremely narrow and precise. The UniSieve membrane is structure made of highly ordered network of porous crystals that generate in a repeating pattern, much like ancient Roman mosaics"

"The concept of combining molecular sieves with a support layer to create the perfect membrane has been out there for decades but never made it into broad, commercially

applicable membranes. When creating the membrane platform technology, the UniSieve Team focussed on economic scalability, the most frequent reason that has prevented other approaches from succeeding.”

UniSieve was established in 2018 by university class fellows Samuel Hess and Elia Schneider. Whilst studying at ETH Zürich, they discovered the means to manufacture and integrate porous crystals (zeolitic materials) into polymeric membranes. Pre-seed funding from Wingman Ventures and several prestigious grants from the European Union, the Swiss government, and private foundations enabled them to prove the hypothesis of their scalable and affordable high-performing membranes.

Samuel Hess added: “We have run pilot testing with industry leaders which have demonstrated that the separation solution works. Today, we have several contracts signed and under negotiation to pilot our membranes in a variety of applications.”

Lukas Weder, founding partner at Wingman Ventures commented: "Energy intensive production processes have been a key talking point across the board. But we're seeing action now. Two important things are happening that are driving this action. Firstly, heavy industry is willing to invest in solutions to tackle the problem and secondly, better quality solutions are available. The UniSieve technology solution has been tried, tested and is ready to be deployed and so, perfectly positioned to help companies quickly to build very powerful energy efficient production processes"

Wolfgang Neubert, General Partner at the Amadeus APEX Technology Fund, commented: “UniSieve is our first industrial technology investment in Switzerland. We were impressed by the team’s to bring this academic thesis to life and not only this to make it commercially viable and scalable. It has the potential to be hugely impactful for the world. We look forward to supporting the team on their journey.”

Ends

Notes to the editor

[Media images can be found here](#). For further information please contact the Unisieve press office: Bilal Mahmood on b.mahmood@stockwoodstrategy.com or +44 (0) 771 400 7257

About UniSieve

UniSieve challenges state-of-the-art separation technology that today is consuming over 10% of global energy. UniSieve’s molecular sieving membranes allow size-based purification up to 90% more energy-efficient than alternative solutions. The membrane portfolio enabled by the company’s platform technology targets numerous applications. Currently, the company focuses on providing selected separation solutions to customers in the chemical, energy markets and CO2 capture. For more information please visit <https://www.unisieve.com/> or follow via [LinkedIn](#).

About the Amadeus APEX Technology Fund

The Amadeus APEX Technology Fund is a partnership between Amadeus Capital Partners and APEX Ventures to support deep tech early-stage startups. The fund invests in seed and series A deep tech ventures with innovative technology and engineering based on significant scientific advances.

Launched in early 2023, the €80M fund invests in sectors that include artificial intelligence and machine learning; quantum technologies and photonics; mobility and space innovation;

autonomous systems and robotics; and other emerging deep tech areas. The fund's investment committee includes Amadeus Capital Partners' Anne Glover, Hermann Hauser, and APEX Ventures' Andreas Riegler and Wolfgang Neubert.

About Wingman Ventures

Wingman Ventures is Switzerland's leading pre-seed fund, backing founder teams building tech companies with the potential to become global market leaders. Wingman has a track record of supporting exceptional founders in creating breakthrough companies and has the passionate conviction that the Swiss startup ecosystem is just starting to write its best success stories.

About Ciech Ventures

Ciech Ventures is a CVC arm of Ciech, an internationally developing chemical group, with 8 production plants and over 3,000 employees in several countries. The company supports innovative startups looking for capital and opportunities for the development of solutions associated with inter alia chemistry innovations, cleantech&circular economy, and modern solutions for agriculture. Ciech Ventures also strives to help startups by leveraging Ciech Group's capabilities and business network. More information about the Ciech Group can be found at www.ciechgroup.com and ciech.ventures.

About Zürcher Kantonalbank

Zürcher Kantonalbank is a leading universal bank in the Zurich economic area with Swiss roots and international reach. It is an independent, incorporated public-law institution of the Canton of Zurich and has received top ratings from the rating agencies Standard & Poor's, Moody's and Fitch (AAA/Aaa). With more than 6,000 employees across the group, Zürcher Kantonalbank offers its clients a comprehensive range of products and services. The bank's core activities include financing businesses, asset and wealth management, trading, capital market transactions, deposits, payment transactions and the card business. Zürcher Kantonalbank provides clients and distribution partners with a comprehensive range of investment and retirement provision products and services.