

## **Petri Tolonen to lead CH-Bioforce: Finnish company has potential impact on the global circular economy**

With more than 30 years of international business experience, **Mr Petri Tolonen** M.Sc. (Eng.) has been appointed CEO of CH-Bioforce Oy, a Finnish developer of biomass fractionation technology. With the new CEO, CH-Bioforce is now commercializing the results of more than four years of intensive research and development.

The pilot plant in Raisio is conducting transformational research, and the company's goal this year is to raise wider awareness among manufacturers and consumers of responsible products.

“CH-Bioforce has developed a whole new way to handle biomass. The method allows all three fractions of biomass – cellulose, lignin, and hemicellulose – to be separated in the same process into high-quality industrial raw materials. Use of this technology allows industrial by-products to become an alternative to oil- and food-based raw materials”, says Mr Tolonen, who started as CEO in January.

New biomaterials can replace fossil-based raw materials, such as oil, used in the manufacture of consumer products and also agricultural-based raw materials, such as cotton and starch. It can thus respond to many challenges of climate change and sustainable agriculture around the world.

### **From research to practice – for the environment**

CH-Bioforce's innovative, world-changing technology and the opportunities it brings are the key reasons for Tolonen's decision to start leading the next global Finnish success story.

“We are on the crest of the wave when it comes to green technology. To slow down climate change and conserve natural resources, the growing and necessary direction is to process all possible industrial and agricultural by-products into useful end products instead of being incinerated or landfilled – globally.”

The growth company's intensive research and development have found that all biomass fractions are suitable for high-value products that can be used in a wide variety of commercial product applications.

“The hemicellulose, lignin, and cellulose separated by our technology can be used in the paper and board industry, the textile industry, the chemical and pharmaceutical industry, or the food industry, to name but a few.”

The process developed by CH-Bioforce is highly scalable and does not require hundreds of millions of investments to adapt it to the industrial level. During the past year, despite the challenging economic climate, this has been piloted at the Raisio plant, and the technology has been introduced to large companies interested in innovations and potential investors.

### **Clear direction for business growth**

CH-Bioforce, with its customers, has taken product development to the stage where product quality and price competitiveness can be relied on 100%. This year's direction is clear. CH-

Bioforce plans to invest in an industrial-scale biorefinery, license the technology to its customers and continue development and commercial test runs in Raisio.

“In addition to the materials produced for our customers, we can demonstrate our technology in practice at our production facility to our customers who are interested in licensing. We are constantly looking for customers for technology licensing and are open to discussing our biorefinery investment with new partners and financiers,” Tolonen says, describing future plans.

### **Who?**

Petri Tolonen, M.Sc. (Eng.) in Paper Technology and Production Economics. He has more than 30 years of experience in international business at UPM, Valmet, and Wärtsilä, mainly in sales and marketing. For the past two years, he was the sales and marketing director of Black Bruin Oy, a manufacturer of radial piston hydraulic motors.

He lives with his wife in Turku, and their family includes two adult children. He spends his free time in his summer house in the Turku archipelago and, in his own words, engages in all kinds of exercise.

### **The company**

CH-Bioforce Oy, a Finnish start-up company, was founded in 2016 to commercialize a completely new type of biomass fractionation technology. The main owners include the chemical industry company Chemec Oy and technology developers Sebastian von Schoultz, Lari Vähäsalo, and Nicholas Lax. The CH-Bioforce headquarters are in Espoo, and R&D facilities and the pilot plant are in Raisio. In addition to the owners, other funders of development and commercialization of the technology are Business Finland and the EU's H2020 SME Instrument.

CH-Bioforce has developed a completely new way to process biomass. The method allows all three fractions of biomass – cellulose, lignin, and hemicellulose – to be separated into high-quality industrial raw materials.

With this completely sulphur-free fractionation technology, biomass as a whole can be utilized more efficiently than any other method currently in use.

The invention makes it possible to replace fossil and food-based raw materials with bio-based alternatives, especially in the textile and packaging industry. Other applications can be found in medicine and the food industry, for example. The method developed by CH-Bioforce is cost-effective and competitive, even compared to oil-based materials.

### **How are we different?**

CH-Bioforce's technology enables efficient utilization of all biomass components, cellulose, hemicellulose, and lignin. No previous methods have achieved this.

All kinds of wood can be used as raw material, as well as straw from grain production. Even by-products, such as sawdust or logging waste, which are not suitable for commonly used fractionation methods, can be used in the process. CH-Bioforce has developed a way to refine them into high-quality materials that can be used by several industries to achieve significant cost savings in their operations and reduce their carbon footprint by replacing oil-based materials with sustainable alternatives.

The technology is completely scalable. A traditional cellulose mill requires investments in the billions, but the CH-Bioforce process is also economically sustainable at smaller production capacities. This allows smaller economic actors to invest in the production of high-quality biomaterials.

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