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Ionomr



SECTOR

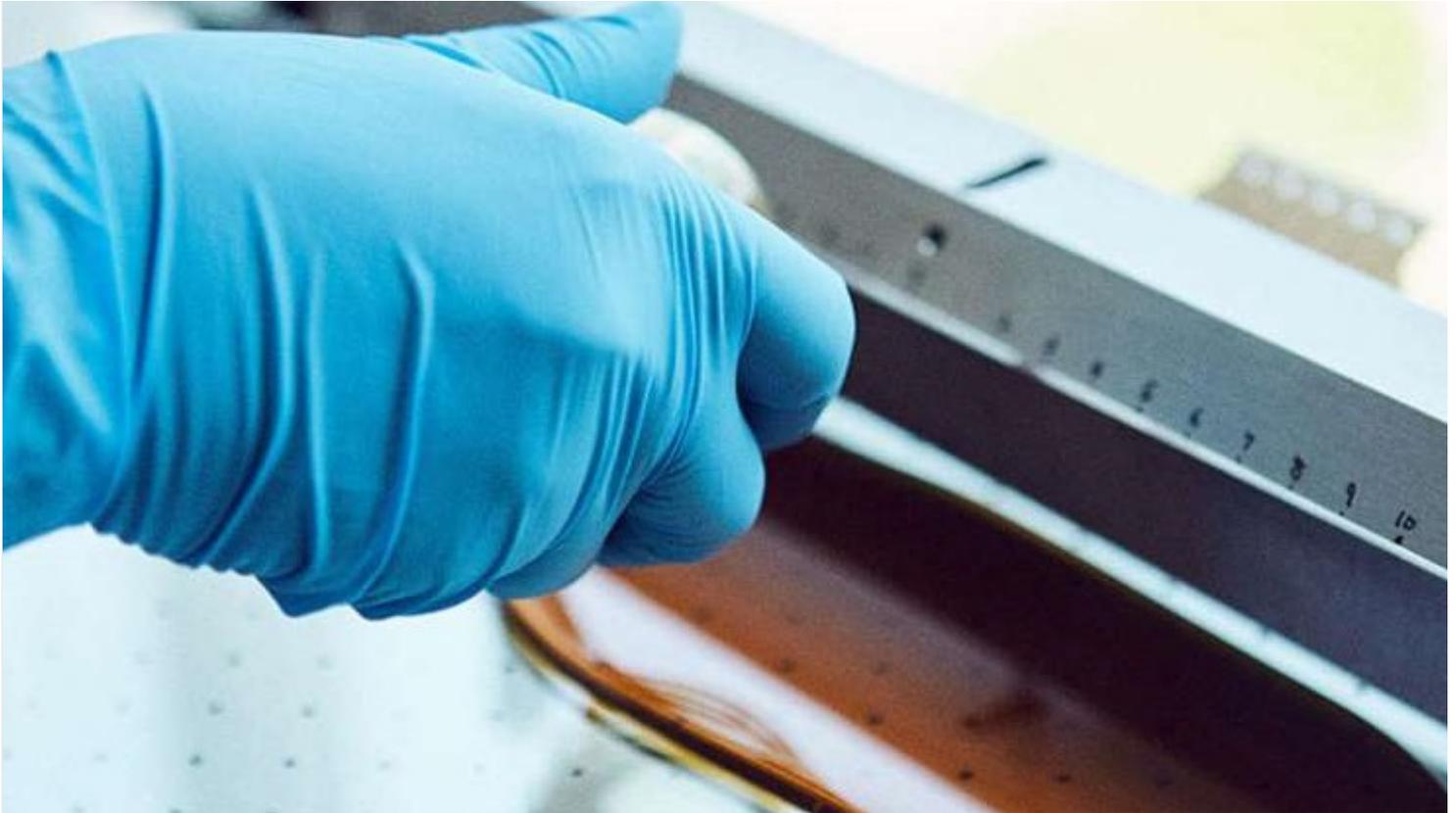
Sustainability

SUBSECTOR

CleanTech

Stats

Location:	Vancouver, British Columbia, Canada
Founded:	24/04/2017
Funding:	9,400,000 CAD
Employees:	16

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IONOMR'S ADVANCED ION-EXCHANGE MEMBRANES & POLYMERS CHALLENGE THE INDUSTRY'S STATUS QUO

Today, we are living a fast-paced life. The rapidly increasing population, living standards, and resource demands have led toward decelerated supplies. Such conditions have strained the world to seek remedies for resource sustainability and revitalization of the planet's environmental state. One specific branch considered to be very result-promising due to its merits, such as ease of incorporation and strong sustainability, is electrochemistry. And one particular segment of electrochemistry has been very "reactive" to the market's attention - ion-exchange membranes.

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Using their experts' knowledge and collective years of experience, the Canadian startup Ionmr pioneered in the field and innovated the *"world's most advanced ion-exchange materials."* Their materials are giving access to a platform that enables cleantech solutions, changing the 50-year status quo on materials' availability on the market.

Founded by two PhDs, Benjamin Britton and Tim Peckham, and led by the industry-experienced Bill Haberlin, Ionmr managed in two years to grow to a 16-member startup, employing experts in their respective fields. The team is utilizing their expertise on scalable electrochemistry to *"enable more efficient systems that will lead to the decarbonization of the planet for future generations."*

Pioneering Ion-Exchange Materials

Ionmr is placing on the market advanced ion-exchange polymers and membranes that enable a developing environment in clean technology. The nature of the materials allows them to be applicable in chemical and water remediation, energy storage and hydrogen, as potentially the only available and viable product on the market that is fluorine-free.

Ionmr's team of chemists has contemplated the previous challenges that ion-exchange membranes demonstrated (short lifespan in harsh conditions, environmental toxicity, and high ionic resistance) and used them to their advantage. They have developed a novel class of hydrocarbon-based, ion-conductive materials that feature mechanical and chemical stability. These properties enabled the production of ultra-thin membranes that when combined with high ionic conductivity, deliver top-notch efficiency in performance.

Unlike other manufacturers of clean technologies, Ionmr is oriented strictly towards hydrocarbon materials – polymer structure that is recyclable and whose production leaves a minimal environmental footprint. Until now, the materials have seen minimal and limited integration in the cleantech industry due to certain chemical and mechanical deficiencies. With their hydrocarbon-based materials placed as a novel approach, Ionmr is combating the demonstrated deficiencies.

The properties that bring advantage to Ionmr's materials compared to existing ones are numerous. Their materials have shown chemical and oxidative stability with high strength, thus making them the obvious choice on the market when seeking for ease of handling, longevity, and thin membrane. They have rated high on the

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Aemion is an advanced anion exchange product featuring high durability and performance. The solution has been developed to be stable in both highly basic and strongly acidic environments, even when exposed to the harshest operating conditions. Because of its durability feature, Aemion bears high applicability and versatility of usage – for chemical generation and recovery, industrial water treatment, hydrogen production, and long-life energy storage. Even though it is developed with very high stability, the company works to improve those rates even further.

Aemion is Ionomr's first commercial product. It is considered as a pioneering innovation on the market being based on the discovery that *"weak sites in polymer structures are the root cause of AEM instability, and they can be effectively protected to prevent alkaline and oxidizing species from breaking down the polymers."* The company explains further that *"The resulting hydrocarbon backbone provides a platform that enables simultaneous performance and life cycle improvements across the industry in water and energy, while reducing your product's environmental impact."*

Pemion is another innovation that Ionomr is placing on the market. Currently at its advanced development stage, Pemion is a new proton and cation exchange membrane and polymer products (such as PEM & CEM). Pemion, as an innovation, signifies a crucial shift in the approach to proton exchange technology. The solution reduces the gas crossover and eliminates the environmental concerns, as it's developed to be the migration from Perfluorinated Sulfonic Acid (PFSA) chemistry to hydrocarbon materials.

Ionomr emphasizes that this product has substantially reduced toxicity levels and environmental impact, both during the manufacturing process and the disposal, compared to its PFSA counterparts. According to the company, *"Pemion boasts one of the highest room-temperature conductivities available while maintaining its mechanical stability for improved total efficiency and longer system life."*

Targeting a Market That Is Expected to Grow at a CAGR of 3.5% by 2026

Throughout the years, Ionomr has been awarded many accolades and recognitions for their groundbreaking ideas and their realization. The latest one is being listed as the "emerging rocker" for the third year in a row by Ready to Rocket (business recognition program for British Columbia's technology sector). Additionally, the

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of the growing demand. Many distinguished market names are focused on diversifying their product lines by expanding the applicability. And as a real plus, the optimization of the manufacturing process has given excellent results in terms of the development of the ion-exchange membranes, making them with better chemical stability.

The global ion-exchange membrane market is anticipated to grow at a CAGR of 3.5% from 2017 to 2026, according to Transparency Market Research. The most lucrative in terms of geographical regions is the Asian Pacific region, which is expected to overshadow other geographical areas.