

2018 Top 5 Ion Exchange Membrane of All-Vanadium Redox Flow Battery Players in North America, Europe, Asia-Pacific, South America, Middle East and Africa

<https://marketpublishers.com/r/29B15FAB334EN.html>

Date: June 2018

Pages: 126

Price: US\$ 4,960.00 (Single User License)

ID: 29B15FAB334EN

Abstracts

The report requires updating with new data and is sent in 48 hours after order is placed.

The vanadium redox battery (VRB) (or Vanadium flow battery) is a type of rechargeable flow battery that employs vanadium ions in different oxidation states to store chemical potential energy. The vanadium redox battery exploits the ability of vanadium to exist in solution in four different oxidation states, and uses this property to make a battery that has just one electroactive element instead of two.

As the schematic shown in Fig, a vanadium redox-flow battery has two chambers, a positive chamber and a negative chamber, separated by an ion-exchange membrane. These two chambers are circulated with electrolytes containing active species of vanadium in different valence states, VO_2^+/VO_2^+ in the positive electrolyte and V^{2+}/V^{3+} in the negative electrolyte. During discharge process, VO_2^+ is reduced to VO_2 at the positive electrode and V^{2+} is oxidized to V^{3+} at the negative electrode, as shown in Equation(1) and (2). The reactions proceed in the opposite direction during charge process. The active species are normally dissolved in a strong acid, and the protons transport across the ion-exchange membrane to balance the charge.

In our report, we cover the ion exchange membrane of all-vanadium redox flow battery. Commercial ion-exchange membranes should have high proton conductivity, good selectivity, and especially low cost. At present, ion-exchange membrane prices are still too high. This affects the installed capacity of vanadium redox flow battery.

Over the next five years, LPI(LP Information) projects that Ion Exchange Membrane of All-Vanadium Redox Flow Battery will register a 18.8% CAGR in terms of revenue,

reach US\$ 27 million by 2023, from US\$ 10 million in 2017.

This report studies the global market, especially in North America, Europe, Asia-Pacific, South America, Middle East and Africa, focuses on the top 5 players in each region, with sales, price, revenue and market share from 2013 to 2018, the top players:

Chemours (DuPont)

FuMa-Tech

Golden Energy Fuel Cell

Dalian Institute of Chemical Physics

Market Segment by Regions, this report splits Global into several key Regions, with sales, revenue, market share of top players in these regions, from 2013 to 2018 (forecast), like

North America (United States, Canada and Mexico)

Asia-Pacific (China, Japan, Southeast Asia, India and Korea)

Europe (Germany, UK, France, Italy and Russia etc.)

South America (Brazil, Chile, Peru and Argentina)

Middle East and Africa (Egypt, South Africa, Saudi Arabia)

Split by Product Types, with sales, revenue, price, market share of each type, can be divided into

Full-fluorination Ion Exchange Membrane

Non-fluorination Ion Exchange Membrane

Others

Split by applications, this report focuses on sales, market share and growth rate in each application, can be divided into

Renewable Power Supply

Industrial Grid (Excluding Renewable Power) Adjustment and Management

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