

Global Vanadium Redox Flow Battery (VRFB) Felt Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Vanadium Redox Flow Battery (VRFB) Felt market size is expected to reach \$ 205 million by 2032, rising at a market growth of 14.8% CAGR during the forecast period (2026-2032).

In 2025, global Vanadium Redox Flow Battery (VRFB) Felt production reached approximately 1.74 million sqm, with an average global market price of around US\$41 per sqm. Vanadium redox flow battery (VRFB) felt is a core electrode material used in VRFB systems, mainly comprising carbon felt and graphite felt. It is made from carbon fibers forming a porous structure, processed through needling, thermal treatment, or graphitization. The felt provides abundant electrochemical reaction sites, facilitates electron conduction, and ensures effective electrolyte penetration, while maintaining chemical stability and corrosion resistance. Carbon felt is flexible with high porosity, supporting efficient ion transport, whereas graphite felt, after high-temperature graphitization, offers higher electrical conductivity and durability. As a critical component of VRFBs, the felt significantly influences the efficiency, energy output, and long-term cycling stability of the battery.

The global installed capacity of vanadium redox flow batteries continues to expand along with the energy transition process. The rigid demand for long-duration energy storage and targeted policy support from multiple countries drive the industry to shift from demonstration application to large-scale deployment. China lists vanadium redox flow batteries as a key technical route for new energy storage and issues special plans to guide project implementation. The United States and the European Union support domestic project construction and technology iteration through tax credits and special R&D funds respectively, forming a multi-driven market pattern worldwide, which directly drives the growth of market demand for upstream electrode felt materials.

Vanadium redox flow battery felt is a core functional component of stacks, which directly determines the energy efficiency and cycle life of batteries. Its market demand is highly correlated with the downstream installation pace. The industry continues to advance material modification and preparation process optimization, improving electrochemical stability and reaction activity while driving down unit costs. The global supply chain shows obvious regional agglomeration: the Asia-Pacific region forms major mass production capacity based on its mature carbon material industrial foundation, while European and American markets focus on high-end modification R&D and localized capacity layout.

In the long run, the continuous decline of system costs and gradual expansion of application scenarios will bring sustained growth space for electrode felt materials. Industry competition will gradually evolve into comprehensive competition of technical performance, cost control and supply chain stability. Meanwhile, the localization trend of global supply chains and rising environmental compliance requirements will also exert a far-reaching influence on the global layout of material enterprises.

This report studies the global Vanadium Redox Flow Battery (VRFB) Felt production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Vanadium Redox Flow Battery (VRFB) Felt and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Vanadium Redox Flow Battery (VRFB) Felt that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Vanadium Redox Flow Battery (VRFB) Felt total production and demand, 2021-2032, (K Sqm)

Global Vanadium Redox Flow Battery (VRFB) Felt total production value, 2021-2032, (USD Million)

Global Vanadium Redox Flow Battery (VRFB) Felt production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Sqm), (based on production site)

Global Vanadium Redox Flow Battery (VRFB) Felt consumption by region & country, CAGR, 2021-2032 & (K Sqm)

U.S. VS China: Vanadium Redox Flow Battery (VRFB) Felt domestic production,

consumption, key domestic manufacturers and share

Global Vanadium Redox Flow Battery (VRFB) Felt production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Sqm)

Global Vanadium Redox Flow Battery (VRFB) Felt production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Sqm)

Global Vanadium Redox Flow Battery (VRFB) Felt production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Sqm)

This report profiles key players in the global Vanadium Redox Flow Battery (VRFB) Felt market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include SGL Carbon, AvCarb, CGT Carbon, JNTG, BWF Tec, CeTech, Liaoning JinGu Carbon Materials, Sichuan Jiangyou Runsheng Graphite Felting, Jiangsu Mige New Material, Chemshine Carbon, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Vanadium Redox Flow Battery (VRFB) Felt market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (K Sqm) and average price (US\$/Sqm) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Vanadium Redox Flow Battery (VRFB) Felt Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Vanadium Redox Flow Battery (VRFB) Felt Market, Segmentation by Type:

Graphite Felt

Carbon Felt

Global Vanadium Redox Flow Battery (VRFB) Felt Market, Segmentation by Base Material:

PAN-based

Rayon-based

Others

Global Vanadium Redox Flow Battery (VRFB) Felt Market, Segmentation by Thickness:

Thickness 6mm

Global Vanadium Redox Flow Battery (VRFB) Felt Market, Segmentation by Application:

Utilities

Renewable Energy

Others

Companies Profiled:

SGL Carbon

AvCarb

CGT Carbon

JNTG

BWF Tec

CeTech

Liaoning JinGu Carbon Materials

Sichuan Jiangyou Runsheng Graphite Felting

Jiangsu Mige New Material

Chemshine Carbon

Jiangsu Puxang EP Sci-Tech

Shenyang Fulai Carbon Fiber

Shanghai Qijie New Materials

Dalian LONGTIAN Tech

Shanghai Carbon Industry

Key Questions Answered:

1. How big is the global Vanadium Redox Flow Battery (VRFB) Felt market?
2. What is the demand of the global Vanadium Redox Flow Battery (VRFB) Felt market?
3. What is the year over year growth of the global Vanadium Redox Flow Battery

(VRFB) Felt market?

4. What is the production and production value of the global Vanadium Redox Flow Battery (VRFB) Felt market?

5. Who are the key producers in the global Vanadium Redox Flow Battery (VRFB) Felt market?

6. What are the growth factors driving the market demand?

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