Breathing Battery Market Will See Strong Expansion Through 2032 - Duracell, Phinergy, Renata SA, PolyPlus, IBM, etc.

Advancement in Technology Foreseen to Drive the Global Breathing Battery Market from 2023 to 2032

Breathing Battery Market

WILMINGTON, DELAWARE, UNITED STATES, March 26, 2024 /EINPresswire.com/ -- The use of air as a cathode material in lithium-air batteries allows for a theoretically unlimited supply of oxygen, potentially leading to longer battery life. This extended lifespan would be advantageous for various applications, reducing the frequency of battery replacements and the associated costs and environmental impact, this will drive the market growth during the forecast period. The breathing battery market size was valued at $17.1 million in 2022 and is estimated to reach $46.6 million by 2032, growing at a CAGR of 10.7% from 2023 to 2032.

> Lithium-air batteries excel in energy density, drawing oxygen for enhanced storage. Ideal for long-lasting, high-energy applications like electric vehicles, driving market growth.”
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> *Allied Market Research*

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The benefit of a breathing battery is that the oxygen does not need to be held inside the battery such as alkaline or Li-ion batteries. The positive electrode used in breathing batteries is carbon-based and covered in some precious metals to react with oxygen. The electrode used is made up of metals such as lithium, zinc, magnesium, and aluminum. These batteries are sometimes referred to as fuel cells as the air flows through the cells present in the batteries.

The energy demand has greatly increased owing to the ongoing expansion of the global

economy. Conventional non-renewable energy sources on earth are scarce. Consequently, the creation of new energy technologies is crucial for a sustainable future. The ideal alternative to satisfy the requirement for energy storage is breathing battery technology. The breathing battery market has grown due to the rise in demand for storage batteries with high energy densities. Breathing batteries can perform better than Lithium-Ion batteries as they can store more energy density.

The breathing batteries are appealing not just as portable power sources for electronics and electric cars, however, also as convincing energy storage systems to control the flow of energy in renewable energy generators, such as wind turbines, solar panels, and electric grids. However, large investment in the research and development of breathing batteries is anticipated to hamper the global breathing battery market growth during the forecast period.

The breathing battery market expansion is anticipated to be fueled by technological advancements such as 3D printing technology and laser processing for the manufacturing of breathing batteries. Manufacturers concentrate on developing small, powerful batteries which are expected to expand the market and drive the breathing battery market growth. Breathing batteries in the automobile industry have emerged widely as an alternative to Li-ion batteries.

Owing to their greater energy capacity, cost-effectiveness, and environmental friendliness, the young generation is motivated enough to use breathing batteries in their electric vehicles. In June 2021, the International Advanced Research Centre for Powder Metallurgy and New Materials located in India, an independent research and development facility of the Department of Science and Technology developed a profitable electrocatalyst that can improve the performance of breathing batteries while also being more affordable.

On the other hand, breathing batteries offer several advantages, however, there are still challenges to overcome, such as a limited life cycle and the need for improved oxygen supply systems. However, the combination of technological advancements, environmental concerns, and the increase in demand for energy storage solutions fuel the growth of the breathing battery industry.

Growing interest and potential for the use of breathing batteries, specifically flow batteries, in electric vehicles (EVs) are expected to drive the growth of the breathing battery market forecast period. Flow batteries offer several advantages that make them appealing for the electric vehicle application. Breathing batteries are inherently scalable, allowing easy adjustment of the battery's size and capacity. This scalability makes them suitable for EV applications, where different vehicle sizes and energy requirements exist.

Furthermore, breathing batteries have the advantage of quick recharging. Instead of waiting for the battery to charge, EVs using flow batteries can simply replace or recharge the liquid electrolytes, similar to refueling a conventional vehicle. This can significantly reduce charging times, making EVs more convenient and practical for everyday use.

In addition, breathing batteries typically exhibit long cycle lives, meaning they can endure a large number of charge-discharge cycles without significant degradation. Moreover, breathing batteries use non-flammable electrolytes, enhancing their safety compared to some other battery chemistries. In addition, certain flow battery chemistries, such as vanadium redox flow batteries, are more environmentally friendly and can be easily recycled, aligning with the sustainability goals of the EV industry.

The breathing battery market is segmented based on battery type, end-use industry, and region. By battery type, the market is classified into lithium-air batteries, aluminum-air batteries, zinc-air batteries, calcium-air batteries, and others. By end-use industry, the market is categorized into automotive, manufacturing, defense, utility energy storage, consumer electronics, and others. By region, the breathing battery market analysis has been done across North America, Europe, Asia-Pacific, and LAMEA.

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The Breathing Battery industry's key market players adopt various strategies such as product launches, product development, collaboration, partnership, and agreements to influence the market. It includes details about the key players in the market's strengths, product portfolio, market size and share analysis, operational results, and market positioning.

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Phinergy
Renata SA
PolyPlus, Lithium Air Industries
Duracell
Ev Dynamics (Holdings) Limited
Energizer Holdings Inc.
Zinc8 Energy Solutions Inc.
IBM
GPIndustrial

By battery type, the lithium-air battery segment dominated the largest market share in 2022 due to lithium-air batteries having the potential to offer significantly higher energy density compared to conventional lithium-ion batteries. This means they can store more energy per unit weight or volume, which is highly desirable for applications that require long-lasting power or need to

reduce the weight of the energy storage system.

By end-use industry, the automotive segment dominated the largest market share in 2022 due to breathing batteries are often considered more environmentally friendly compared to traditional internal combustion engines. They produce zero direct emissions during operation and have the potential for improved sustainability if the metal can be recycled efficiently.

Based on region, the breathing battery market analysis has been done across North America, Europe, Asia-Pacific, and LAMEA. Asia-Pacific had the highest breathing battery market share in 2022 due to the Asia-Pacific region, particularly China, is a significant market for electric vehicles. Metal-air batteries, with their high energy density and potential for longer driving ranges, are being explored as a promising alternative to traditional lithium-ion batteries. The demand for EVs in the region will open breathing battery market opportunities in metal-air battery development and adoption.

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- Based on battery type, the lithium-air battery segment has a dominant market share in the global breathing battery market in terms of revenue and it is anticipated to grow at the highest CAGR of 10.9% during the forecast period.
- Based on the end-use industry, the automotive segment has a dominant market share in the global breathing battery market in terms of revenue and it is anticipated to grow at the highest CAGR of 11.1% during the forecast period.
- Based on region, Asia-Pacific region has a dominant market share in the global breathing battery market in terms of revenue and it is anticipated to grow at the highest CAGR of 10.9% during the forecast period.

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