

Adsorbents Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Type (Activated Carbon, Silica Gel, Molecular Sieves, Others), By Application (Gas Refining, Petroleum Refining, Water Treatment, Others), By Region and Competition

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Abstracts

Adsorbents market is anticipated to grow significantly through 2028 due to the large-scale developments in oil and gas processing. In 2021, oil production in the Asia-Pacific region amounted to roughly 7.25 million barrels per day.

Substances that absorb another material are called adsorbents. Through the adhesion process, adsorbents build layers on the surface. They induce solids, liquids, and gases to lose some of their characteristics while keeping their chemical and physical characteristics, causing them to stick to their surfaces. In addition, the adsorbents have several beneficial qualities like high abrasion resistance, high surface capacity, and high thermal stability, that make them suitable for use in a range of petrochemical industries, air separation and drying industries, water treatment industries, and others that are also expected to support the market's growth in the upcoming years. Furthermore, the pharmaceutical industry's growing need for polymeric adsorbents to remove antibiotics, peptides, proteins, and other chemicals is another factor anticipated to drive the expansion of the worldwide adsorbent market.

Moreover, increasing demand for bio-based adsorbents and the growing number of environmental regulations and concerns will further expand the future growth of the adsorbent market.

Denitrogenating and Desulfurization Technology

Refineries are compelled to manage larger inventories due to increased demand for distillate fuels and diminishing supplies of lighter, simpler-to-process crude. When burnt, the elevated quantities of nitrogen and sulfur, which produce nitrogen and sulfur oxides that are bad for the environment, are the primary problems encountered while processing these stocks. Hydrogenation and hydro-sulfurization using hydro-treating catalysts are the typical processes used in refineries all over the globe to remove organic nitrogen/sulfur compounds from liquid fuels. High pressure, high temperatures, and hydrogen consumption are frequently required for these operations. Refractory sulfur compounds present in liquid fuels are not removed by the existing hydro-desulfurization process; only simple sulfur compounds are. These factors will propel the market in the forecast period.

Growing Demand for Oxygen Concentrators

Medical equipment that concentrates oxygen from the surrounding environment is known as an oxygen concentrator. Oxygen concentrators are among the most desirable equipment for oxygen therapy, particularly among patients suffering from asthma and breathing problems. Approximately 78% of the atmosphere's air is nitrogen, 21% is oxygen, and the rest 1% is made up of other gases. The oxygen concentrator sucks this air in, filters it via a molecular sieve, adds nitrogen again to the atmosphere, and then runs on the remaining oxygen. Unlike Liquid Medical Oxygen (LMO), which must be stored and transported in cryogenic tankers, an oxygen concentrator is portable and does not require a certain temperature. Concentrators need a power source to pull outside air, unlike cylinders. Based on the species' molecular characteristics and affinity for an adsorbent material, Pressure swing adsorption (PSA) is a technique to selectively extract some gas species from a mixture of gases under pressure. Therefore, a key development in the market for Adsorbents is R&D in advanced equipment.

Molecular Sieves Will Continue to Be a Key Type

Molecular sieves are made of synthetic zeolites with uniformly sized and structured holes that enable them to absorb gases and liquids by their polarity and molecular size. To dry ethanol, these items are widely utilized in the petroleum and petrochemical industries. Manufacturers can get around 96% ethanol with this method, leaving only 4% water. Manufacturers are introducing 3A molecular sieves to filter out bigger ethanol molecules to attain a greater degree of purity. In the years to come, it is anticipated that these improvements will keep the industry growing.

In addition, Silica gel is another popular adsorbent, which is mostly utilized in the packaging sector. The good adsorption qualities of silica gel prevent moisture from forming in electrical and electronic products. Therefore, the adsorbents market is expected to grow throughout the forecast period.

Recent Developments

In September 2021, Shell and BASF revealed plans to join forces to accelerate the transition to a zero-emissions world. The two companies explored, de-risked, and deployed BASF's Sorbead Adsorption Technology for pre- and post-combustion applications in Carbon Capture & Storage as part of their collaboration.

In June 2021, Honeywell announced that it has partnered with the Indian Government's Defense Research Development Organization (DRDO) and the Council of Industrial Research- Indian Institute of Petroleum (CSIR-IIP) to increase oxygen production. The company aims to redirect the supply of adsorbents to accelerate the establishment of medical oxygen plants.

Altus Midstream installed Honeywell UOP's Ortloff SRX technology at its Diamond Central cryogenic gas processing complex, marking the first global use of the innovative technology to recover valuable natural gas liquids (NGLs) from input gas, according to Honeywell in January 2020.

BASF launched Durasorb HG, a mercury removal adsorbent, in June 2019.

In February 2019, BASF collaborated with Linde to serve natural gas processing applications using BASF's adsorbent technology and Linde's adsorption & membrane technology.

Market Segmentation

Global Adsorbents Market is segmented based on type, application, and region. Based on the type, the market is categorized into activated carbon, silica gel, molecular sieves, and others. Based on application, the market is segmented into gas refining, petroleum refining, water treatment, and others. Based on region, the market is divided into North America, Europe, Asia Pacific, South America, Middle East & Africa, By Company.

Company Profiles

Arkema SA, Global Adsorbents Pvt. Ltd., BASF SE, novoMOF AG, SpaceBlack Adsorbents, Dalian Haixin Chemical Co., Ltd, UOP LLC, Pioneer Technology Co., Ltd., Zeochem LLC, Dorf Ketal Chemicals India Private Limited are some of the key players of the Global Adsorbents Market.

Report Scope:

In this report, the global adsorbents market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Adsorbents Market, By Type:

Activated Carbon

Silica Gel

Molecular Sieves

Others

Adsorbents Market, By Application:

Gas Refining

Petroleum Refining

Water Treatment

Others

Adsorbents Market, By Region:

North America

United States

Mexico

Canada

Europe

France

Germany

United Kingdom

Italy

Spain

Switzerland

Asia-Pacific

China

India

South Korea

Japan

Australia

Indonesia

Thailand

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive landscape

Company Profiles: Detailed analysis of the major companies in the global adsorbents market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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