Gas Separation Membrane Market Research Report – Global Forecast till 2023

Market Synopsis

Gas separation is one of the widely employed unit operation throughout the chemical and oil & gas industries. The process includes the removal of volatile organic compounds from waste streams, separation of air into oxygen and nitrogen, and natural gas dehydration, among others. Cryogenic distillation and adsorbent bed processes are some of the traditional methods used for such separations. However, in the recent years, the use of membrane-based gas separation is increasing. This is mainly due to its integral advantages such as low capital and operating costs, lower energy requirements, and ease of operation over the traditional methods. Gas separation in membranes occurs due to differences in permeabilities of the species flowing through the membrane. The membranes used for this separation process are manufactured using various materials including porous inorganic, polymeric, microporous inorganic, and hybrid.

Rising concerns over global warming due to the increasing CO2 emissions is expected to be the primary factor fueling demand for gas separation membranes in removal of CO2. Feasibility of the membrane separation process under mild conditions and flexibility of operation due to compactness of modules leading to reduction in fuel consumption are the key factors boosting the use of this separation process by the industries. Stringent government regulations on the emission of the greenhouse gases from the industries is further expected to drive growth of this market in the years to follow. In addition, significant increase in the demand for membrane separation process in natural gas treatment, hydrogen purification, separation of hydrocarbons, and carbon dioxide captures is projected to favor growth of the market during the review period. However, issues related to membrane fouling, and swelling and plasticization of polymeric membranes are expected to be the major factors hampering growth of this market.

The key players operating in this market are adopting various business strategies such as R&D, product launches, expansions, joint ventures, agreements, and acquisitions to gain significant market shares. For instance, in June 2018, Evonik launched new high-performance plastic based hollow-fiber membrane, SEPURAN NG, for selective separation of sour gases from the natural gas.

Global Gas Separation Membrane Market Share, by End-Use Industry, 2017 (%)
Regional Analysis

The global gas separation membrane market has been segmented into five regions, namely, Asia-Pacific, North America, Europe, Latin America, and the Middle East & Africa. In 2017, Asia-Pacific accounted for the largest share of this market. This can be attributed to increasing use of the gas separation membranes for the control of CO2 emissions from the industrial effluents. Moreover, strengthening government regulations to curb the gaseous emissions is expected to fuel demand for the product in the coming years. Furthermore, significant growth of the natural gas production in the region, the demand for gas separation membrane in acid gases separation is likely to propel; growth of the regional market during the forecast period.

The European market held a significant share of the global gas separation membrane market in 2017. This can be attributed to widespread use of the product in natural gas processing plants for separation of the acid gases.

Market Segmentation

The global gas separation membrane market has been segmented on the basis of material type, application, end-use industry, and region.

By material type, the global gas separation membrane market has been classified into porous inorganic, polymeric, microporous organic, hybrid, and others. The porous inorganic segment is further classified into metal, zeolite, ceramics, and alumina. The polymeric segment is further subdivided into polyimide, cellulose acetate, and polysulfone.

By application, the global gas separation membrane market has been categorized as industrial gases separation, CO2 removal, acid gases separation from natural gas, hydrogen recovery, hydrocarbons recovery, and others.

On the basis of end-use industry, the global gas separation membrane market has been divided into chemical, oil & gas, electric power, food & beverages, and others.

The global gas separation membrane market has been studied with respect to five key regions—Asia-Pacific, North America, Europe, Latin America, and the Middle East & Africa.

Key Players

Some of the leading players in the global gas separation membrane market are Air Products and Chemicals Inc (US), Ube Industries Ltd (Japan), Air Liquide Advanced Separation (US), Schlumberger Limited (US), Membrane Technology and Research Inc (US), Evonik Industries AG (Germany), FUJIFILM Manufacturing Europe BV (the Netherlands), Honeywell International Inc (US), Generon IGS Inc. (US), DIC Corporation (Japan), and SRI International (US), among others.

Intended Audience

- Gas separation membrane manufacturers
- Traders and distributors of gas separation membrane
- Research and development institutes
- Potential investors
- Raw material suppliers
- Nationalized laboratories

<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
</tr>
<tr>
<td>1 Executive Summary</td>
</tr>
<tr>
<td>2 Scope of the Report</td>
</tr>
<tr>
<td>2.1 Market Definition</td>
</tr>
<tr>
<td>2.2 Scope of the Study</td>
</tr>
<tr>
<td>2.3 List of Assumptions</td>
</tr>
<tr>
<td>2.4 Markets Structure</td>
</tr>
<tr>
<td>3 Market Research Methodology</td>
</tr>
<tr>
<td>3.1 Research Process</td>
</tr>
<tr>
<td>3.2 Primary Research</td>
</tr>
<tr>
<td>3.3 Secondary Research</td>
</tr>
<tr>
<td>3.4 Market Size Estimation</td>
</tr>
<tr>
<td>3.5 Forecast Model</td>
</tr>
<tr>
<td>4 Market Factor Analysis</td>
</tr>
<tr>
<td>4.1 Supply Chain Analysis</td>
</tr>
<tr>
<td>4.1.1 Raw Material Suppliers</td>
</tr>
<tr>
<td>4.1.2 Manufacturers/Producers</td>
</tr>
<tr>
<td>4.1.3 Distributors/Retailers/Wholesalers/E-Commerce Merchants</td>
</tr>
<tr>
<td>4.1.4 End Users</td>
</tr>
<tr>
<td>4.2 Porter’s Five Forces Model</td>
</tr>
<tr>
<td>4.2.1 Threat of New Entrants</td>
</tr>
<tr>
<td>4.2.2 Intensity of Competitive Rivalry</td>
</tr>
<tr>
<td>4.2.3 Threat of Substitutes</td>
</tr>
<tr>
<td>4.2.4 Bargaining Power of Suppliers</td>
</tr>
<tr>
<td>4.2.5 Bargaining Power of Buyers</td>
</tr>
<tr>
<td>5 Market Dynamics of Global Gas Separation Membrane Market</td>
</tr>
<tr>
<td>5.1 Introduction</td>
</tr>
<tr>
<td>5.2 Drivers</td>
</tr>
<tr>
<td>5.3 Restraints</td>
</tr>
<tr>
<td>5.4 Opportunities</td>
</tr>
<tr>
<td>5.5 Challenges</td>
</tr>
<tr>
<td>6. Global Gas Separation Membrane Market, by Material Type</td>
</tr>
<tr>
<td>6.1 Introduction</td>
</tr>
<tr>
<td>6.2 Porous Inorganic</td>
</tr>
<tr>
<td>6.2.1 Market Estimates &amp; Forecast, 2016—2023</td>
</tr>
<tr>
<td>6.2.2 Market Estimates &amp; Forecast, by Region, 2016—2023</td>
</tr>
<tr>
<td>6.2.3 Metal</td>
</tr>
<tr>
<td>6.2.3.1. Market Estimates &amp; Forecast, 2016—2023</td>
</tr>
<tr>
<td>6.2.3.2. Market Estimates &amp; Forecast by Region, 2016—2023</td>
</tr>
<tr>
<td>6.2.4 Zeolite</td>
</tr>
</tbody>
</table>
6.2.4.1. Market Estimates & Forecast, 2016—2023
6.2.4.2. Market Estimates & Forecast by Region, 2016—2023
6.2.5 Ceramics
6.2.5.1. Market Estimates & Forecast, 2016—2023
6.2.5.2. Market Estimates & Forecast by Region, 2016—2023
6.2.6 Alumina
6.2.6.2. Market Estimates & Forecast by Region, 2016—2023
6.3 Polymeric
6.3.1 Market Estimates & Forecast, 2016—2023
6.3.2 Market Estimates & Forecast, by Region, 2016—2023
6.3.3 Polyimide
6.3.3.1. Market Estimates & Forecast, 2016—2023
6.3.3.2. Market Estimates & Forecast by Region, 2016—2023
6.3.4 Cellulose Acetate
6.3.4.1. Market Estimates & Forecast, 2016—2023
6.3.4.2. Market Estimates & Forecast by Region, 2016—2023
6.3.5 Polysulfone
6.3.5.1. Market Estimates & Forecast, 2016—2023
6.3.5.2. Market Estimates & Forecast by Region, 2016—2023
6.4 Microporous Organic
6.4.1 Market Estimates & Forecast, 2016—2023
6.4.2 Market Estimates & Forecast, by Region, 2016—2023
6.5 Hybrid
6.5.1 Market Estimates & Forecast, 2016—2023
6.5.2 Market Estimates & Forecast, by Region, 2016—2023
6.6 Others
6.6.1 Market Estimates & Forecast, 2016—2023
6.6.2 Market Estimates & Forecast, by Region, 2016—2023
7. Global Gas Separation Membrane Market, by Application
7.1 Introduction
7.2 Industrial Gases Separation
7.2.1 Market Estimates & Forecast, 2016—2023
7.2.2 Market Estimates & Forecast, by Region, 2016—2023
7.3 CO2 Removal
7.3.1 Market Estimates & Forecast, 2016—2023
7.3.2 Market Estimates & Forecast, by Region, 2016—2023
7.4 Acid Gases Separation from Natural Gas
7.4.1 Market Estimates & Forecast, 2016—2023
7.4.2 Market Estimates & Forecast, by Region, 2016—2023
7.5 Hydrogen Recovery
7.5.1 Market Estimates & Forecast, 2016—2023
7.5.2 Market Estimates & Forecast, by Region, 2016—2023
7.6 Hydrocarbons Recovery
7.6.1 Market Estimates & Forecast, 2016—2023
7.6.2 Market Estimates & Forecast, by Region, 2016—2023
7.7 Others
7.7.1 Market Estimates & Forecast, 2016—2023
7.7.2 Market Estimates & Forecast, by Region, 2016—2023

8. Global Gas Separation Membrane Market, by End-Use Industry

8.1 Introduction

8.2 Chemical
8.2.1 Market Estimates & Forecast, 2016—2023
8.2.2 Market Estimates & Forecast, by Region, 2016—2023

8.3 Oil & Gas
8.3.1 Market Estimates & Forecast, 2016—2023
8.3.2 Market Estimates & Forecast, by Region, 2016—2023

8.4 Electric Power
8.4.1 Market Estimates & Forecast, 2016—2023
8.4.2 Market Estimates & Forecast, by Region, 2016—2023

8.5 Food & Beverages
8.5.1 Market Estimates & Forecast, 2016—2023
8.5.2 Market Estimates & Forecast, by Region, 2016—2023

8.6 Others
8.6.1 Market Estimates & Forecast, 2016—2023
8.6.2 Market Estimates & Forecast, by Region, 2016—2023

9. Global Gas Separation Membrane Market, by Region

9.1 Introduction

9.2 North America
9.2.1 Market Estimates & Forecast, 2016—2023
9.2.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.2.3 Market Estimates & Forecast, by Application, 2016—2023
9.2.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.2.5 US
9.2.5.1 Market Estimates & Forecast, 2016—2023
9.2.5.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.2.5.3 Market Estimates & Forecast, by Application, 2016—2023
9.2.5.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.2.6 Canada
9.2.6.1 Market Estimates & Forecast, 2016—2023
9.2.6.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.2.6.3 Market Estimates & Forecast, by Application, 2016—2023
9.2.6.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

9.3 Europe
9.3.1 Market Estimates & Forecast, 2016—2023
9.3.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.5 Germany
9.3.5.1 Market Estimates & Forecast, 2016—2023
9.3.5.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.5.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.5.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.6 France
9.3.6.1 Market Estimates & Forecast, 2016—2023
9.3.6.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.6.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.6.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.7 Italy
9.3.7.1 Market Estimates & Forecast, 2016—2023
9.3.7.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.7.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.7.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.8 Spain
9.3.8.1 Market Estimates & Forecast, 2016—2023
9.3.8.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.8.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.8.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.9 UK
9.3.9.1 Market Estimates & Forecast, 2016—2023
9.3.9.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.9.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.9.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.10 Russia
9.3.10.1 Market Estimates & Forecast, 2016—2023
9.3.10.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.10.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.10.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.3.11 Rest of Europe
9.3.11.1 Market Estimates & Forecast, 2016—2023
9.3.11.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.3.11.3 Market Estimates & Forecast, by Application, 2016—2023
9.3.11.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.4 Asia Pacific
9.4.1 Market Estimates & Forecast, 2016—2023
9.4.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.4.3 Market Estimates & Forecast, by Application, 2016—2023
9.4.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.4.5 China
9.4.5.1 Market Estimates & Forecast, 2016—2023
9.4.5.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.4.5.3 Market Estimates & Forecast by Application, 2016—2023
9.4.5.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.4.6 India
9.4.6.1 Market Estimates & Forecast, 2016—2023
9.4.6.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.4.6.3 Market Estimates & Forecast by Application, 2016—2023
9.4.6.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.4.7 South Korea
9.4.7.1 Market Estimates & Forecast, 2016—2023
9.4.7.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.4.7.3 Market Estimates & Forecast by Application, 2016—2023
9.4.7.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023
9.4.8 Indonesia
9.6.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

9.6.5 Brazil
9.6.5.1 Market Estimates & Forecast, 2016—2023
9.6.5.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.6.5.3 Market Estimates & Forecast, by Application, 2016—2023
9.6.5.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

9.6.6 Argentina
9.6.6.1 Market Estimates & Forecast, 2016—2023
9.6.6.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.6.6.3 Market Estimates & Forecast, by Application, 2016—2023
9.6.6.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

9.6.7 Mexico
9.6.7.1 Market Estimates & Forecast, 2016—2023
9.6.7.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.6.7.3 Market Estimates & Forecast, by Application, 2016—2023
9.6.7.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

9.6.8 Rest of Latin America
9.6.8.1 Market Estimates & Forecast, 2016—2023
9.6.8.2 Market Estimates & Forecast, by Material Type, 2016—2023
9.6.8.3 Market Estimates & Forecast, by Application, 2016—2023
9.6.8.4 Market Estimates & Forecast, by End-Use Industry, 2016—2023

10. Competitive Landscape
10.1 Introduction
10.2 Market Key Strategies
10.3 Key Development Analysis

(Expansions/Mergers & Acquisitions/Joint Ventures/New Product Developments/Agreements/Investments)

11. Company Profiles
11.1 Air Products and Chemicals Inc
11.1.1 Company Overview
11.1.2 Financial Overview
11.1.3 Products Offered
11.1.4 Key Developments
11.1.5 SWOT Analysis
11.1.6 Key Strategies

11.2 Ube Industries Ltd
11.2.1 Company Overview
11.2.2 Financial Overview
11.2.3 Products Offered
11.2.4 Key Developments
11.2.5 SWOT Analysis
11.2.6 Key Strategies

11.3 Air Liquide Advanced Separation
11.3.1 Company Overview
11.3.2 Financial Overview
11.3.3 Products Offered
11.3.4 Key Developments
11.3.5 SWOT Analysis
11.3.6 Key Strategies
11.10.6 Key Strategies
11.11 SRI International
11.11.1 Company Overview
11.11.2 Financial Overview
11.11.3 Products Offered
11.11.4 Key Developments
11.11.5 SWOT Analysis
11.11.6 Key Strategies
12. Conclusion

LIST OF TABLES
Table 1 Global Gas Separation Membrane Market, by Region, 2016—2023
Table 2 North America: Gas Separation Membrane Market, by Country, 2016—2023
Table 3 Europe: Gas Separation Membrane Market, by Country, 2016—2023
Table 4 Asia-Pacific: Gas Separation Membrane Market, by Country, 2016—2023
Table 5 Middle East & Africa: Gas Separation Membrane Market, by Country, 2016—2023
Table 6 Latin America: Gas Separation Membrane Market, by Country, 2016—2023
Table 7 Global Gas Separation Membrane Material Type Market, by Region, 2016—2023
Table 8 North America: Gas Separation Membrane Material Type Market, by Country, 2016—2023
Table 9 Europe: Gas Separation Membrane Material Type Market, by Country, 2016—2023
Table 10 Asia-Pacific: Gas Separation Membrane Material Type Market, by Country, 2016—2023
Table 11 Middle East & Africa: Gas Separation Membrane Material Type Market, by Country, 2016—2023
Table 12 Latin America: Gas Separation Membrane Material Type Market, by Country, 2016—2023
Table 13 Global Gas Separation Membrane Application Market, by Region, 2016—2023
Table 14 North America: Gas Separation Membrane Application Market, by Country, 2016—2023
Table 15 Europe: Gas Separation Membrane Application Market, by Country, 2016—2023
Table 16 Asia-Pacific: Gas Separation Membrane Application Market, by Country, 2016—2023
Table 17 Middle East & Africa: Gas Separation Membrane Application Market, by Country, 2016—2023
Table 18 Latin America: Gas Separation Membrane Application Market, by Country, 2016—2023
Table 19 Global Gas Separation Membrane End-Use Industry Market, by Region, 2016—2023
Table 20 North America: Gas Separation Membrane End-Use Industry Market, by Country, 2016—2023
Table 21 Europe: Gas Separation Membrane End-Use Industry Market, by Country, 2016—2023
Table 22 Asia-Pacific: Gas Separation Membrane End-Use Industry Market, by Country, 2016—2023
Table 23 Middle East & Africa: Gas Separation Membrane End-Use Industry Market, by Country, 2016—2023
Table 24 Latin America: Gas Separation Membrane End-Use Industry Market, by Country, 2016—2023
Table 25 Global Material Type Market, by Region, 2016—2023
Table 26 Global Application Market, by Region, 2016—2023
Table 27 Global End-Use Industry Market, by Region, 2016—2023
Table 28 North America: Gas Separation Membrane Market, by Country, 2016—2023
Table 29 North America: Gas Separation Membrane Market, by Material, 2016—2023
Table 30 North America: Gas Separation Membrane Market, by Application, 2016—2023
Table 31 North America: Gas Separation Membrane Market, by End-Use Industry, 2016—2023
Table 32 Europe: Gas Separation Membrane Market, by Country, 2016—2023
Table 33 Europe: Gas Separation Membrane Market, by Material, 2016—2023
Table 34 Europe: Gas Separation Membrane Market, by Application, 2016—2023
Table 35 Europe: Gas Separation Membrane Market, by End-Use Industry, 2016—2023
Table 36 Asia-Pacific: Gas Separation Membrane Market, by Country, 2016—2023
Table 37 Asia-Pacific: Gas Separation Membrane Market, by Material, 2016—2023
Table 38 Asia-Pacific: Gas Separation Membrane Market, by Application, 2016—2023
Table 39 Asia-Pacific: Gas Separation Membrane Market, by End-Use Industry, 2016—2023
Table 39 Asia-Pacific: Gas Separation Membrane Market, by End-Use Industry, 2016—2023
Table 40 Middle East & Africa: Gas Separation Membrane Market, by Country, 2016—2023
Table 41 Middle East & Africa: Gas Separation Membrane Market, by Material, 2016—2023
Table 42 Middle East & Africa: Gas Separation Membrane Market, by Application, 2016—2023
Table 43 Middle East & Africa: Gas Separation Membrane Market, by End-Use Industry, 2016—2023
Table 44 Latin America: Gas Separation Membrane Market, by Country, 2016—2023
Table 45 Latin America: Gas Separation Membrane Market, by Material, 2016—2023
Table 46 Latin America: Gas Separation Membrane Market, by Application, 2016—2023
Table 47 Latin America: Gas Separation Membrane Market, by End-Use Industry, 2016—2023

LIST OF FIGURES

FIGURE 1 Global Gas Separation Membrane Market Segmentation
FIGURE 2 Forecast Research Methodology
FIGURE 3 Porter’s Five Forces Analysis of Global Gas Separation Membrane Market
FIGURE 4 Value Chain/Supply Chain of Global Gas Separation Membrane Market
FIGURE 5 Share of Global Gas Separation Membrane Market, by Country, 2017 (%)
FIGURE 6 Global Gas Separation Membrane Market, 2016—2023
FIGURE 7 Global Gas Separation Membrane Market Size, by Material Type, 2017 (%)
FIGURE 8 Share of Global Gas Separation Membrane Market, by Material Type, 2016—2023
FIGURE 9 Global Gas Separation Membrane Market Size, by Application, 2017 (%)
FIGURE 10 Share of Global Gas Separation Membrane Market, by Application, 2016—2023
FIGURE 11 Global Gas Separation Membrane Market Size, by End-Use Industry, 2017 (%)
FIGURE 12 Share of Global Gas Separation Membrane Market, by End-Use Industry, 2016—2023