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Cells; 7 Gas Separation with Membranes; 7.1 Introduction
 7.2 Materials and Transport Mechanisms 7.2.1 Organic Polymers; 7.2.2
 Background; 7.2.3 Polymers for Commercial Gas-separation
 Membranes; 7.2.4 Ultrahigh Free Volume Polymers; 7.2.5 Inorganic
 Materials for Gas-separation Membranes; 7.2.6 Carbon Membranes;
 7.2.7 Perovskite-type Oxide Membranes for Air Separation; 7.2.8
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 Acknowledgments; References; Part II Current Application and
 Perspectives; 1 The Separation of Organic Vapors from Gas Streams by
 Means of Membranes; Summary; 1.1 Introduction; 1.2 Historical
 Background
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 Selectivity; 1.3.3 Temperature and Pressure; 1.3.4 Membrane Modules;
 1.4 Applications; 1.4.1 Design Criteria; 1.4.2 Off-gas and Process Gas
 Treatment; 1.4.2.1 Gasoline Vapor Recovery; 1.4.2.2 Polyolefin
 Production Processes; 1.5 Applications at the Threshold of
 Commercialization; 1.5.1 Emission Control at Petrol Stations; 1.5.2
 Natural Gas Treatment; 1.5.3 Hydrogen/Hydrocarbon Separation; 1.6
 Conclusions and Outlook; References; 2 Gas-separation Membrane
 Applications; 2.1 Introduction; 2.2 Membrane Application Development
 2.2.1 Membrane Selection 2.2.2 Membrane Form; 2.2.3 Membrane
 Module Geometry; 2.2.4 Compatible Sealing Materials; 2.2.5 Module
 Manufacture; 2.2.6 Pilot or Field Demonstration; 2.2.7 Process Design;
 2.2.8 Membrane System; 2.2.9 Beta Site; 2.2.10 Cost/Performance; 2.3
 Commercial Gas-separation Membrane Applications; 2.3.1 Hydrogen
 Separations; 2.3.2 Helium Separations; 2.3.3 Nitrogen Generation;
 2.3.4 Acid Gas-Separations; 2.3.5 Gas Dehydration; 2.4 Developing
 Membrane Applications; 2.4.1 Oxygen and Oxygen-enriched Air; 2.4.2
 Nitrogen Rejection from Natural Gas; 2.4.3 Nitrogen-enriched Air (NEA)
 References

Sommario/riassunto

Membrane Technology - a clean and energy saving alternative to traditional/conventional processes. Developed from a useful laboratory technique to a commercial separation technology, today it has widespread and rapidly expanding use in the chemical industry. It has established applications in areas such as hydrogen separation and recovery of organic vapors from process gas streams, and selective transport of organic solvents, and it is opening new perspectives for catalytic conversion in membrane reactors. Membrane technology provides a unique solution for industrial waste treatment and
