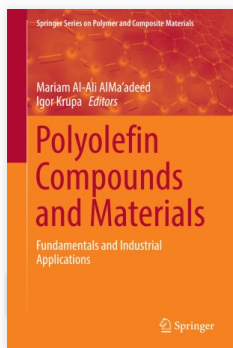


## 2. Polyolefins—The History and Economic Impact



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### Abstract

Olefins, or alkenes, are hydrocarbon molecules with at least one double carbon-carbon bond. Polyolefins are polymer molecules made in an addition (chain-growth) polymerization, producing essentially linear high molecular weight thermoplastic polymers. A global industry of almost 170 million tons and value around \$200 billion, has been created and developed in about 80 years, since the serendipitous discovery of polyethylene in 1933 at the research laboratories of ICI [Imperial Chemical Industries) in the UK and the start of PE commercial production in 1938. These polyolefin polymers are now the major fraction (62 %) of the plastic materials which have transformed modern life. No other major material has appeared on the scene and achieved such a dominant and ubiquitous place in such a short time. As new materials, polyolefins have introduced new possibilities and benefits at attractive price points. Their annual growth rate remains exponential. Polyolefins are used in every sector of life and are processed by every significant polymer processing technology. The history of this polyolefin industry is inextricably linked with progress in the understanding and development of polymer science and technology, and the economic and commercial impact of this progress. Consistent themes in this history are serendipity, discovery, research, feedstock, capital intensity, intellectual property, globalisation, merger & acquisition, and product and application development. Polyolefins remain highly technology-driven; they are indispensable to modern life; their significant growth and economic impact will continue.