

PRESENT & FUTURE OF PLASTICS. SOCIO-ECONOMIC ASPECTS FROM THE GLOBAL VIEW

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Public concern about the human and environmental health effects related to the production and consumption of various man-made materials and products is increasing. These effects may occur at every stage in a product's life cycle, from the extraction of the raw materials through their processing, manufacturing, transportation, consumption, reuse, recovery and end-of-life phases. At least some forms of plastics are one type of man-made material causing such concern.

Synthetic and semi-synthetic polymeric materials and relevant manufactured plastic items are developed to be durable and resistant to all forms of degradation, e.g. physical, chemical and biological. These are typically desirable characteristics for a wide variety of applications, such as for food packaging, agricultural uses, and medical uses. Special material performances are achieved under manufacturing conditions that maintain molecular weight and functionality of the polymers during processing and under service conditions. Plastics have been and are increasingly used because of their amenability to cost effective processing and functional design of items needed both in modern industrial societies and in developing countries. However all those good features, that make the plastic items so convenient and useful to modern human life have, also contributed to increasing plastic waste flows that create new and not yet solved waste management problems that are indeed of global impact.

Nowadays polymer consumptions for plastic applications in Western Europe is approximately 60 million tonnes, while worldwide consumption has reached a level of 300 million tonnes. Many plastic applications involve a service life lasting less than 1-2 years; after that the vast majority of these plastic items are discarded as post-consumer waste. What is the optimal way of handling these wastes? Challenging opportunities will be presented.