Comparative Assessment of Physical and Chemical Properties of Carrier Bags and Comparison of Its Appropriateness with Environmental Studies

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Due to the general opinion that carrier plastic bags represent ecological burden to the environment, the number of measures aimed to reduce their consumption has increased recently. Consequently, the use of carrier bags made from recycled and biodegradable plastic materials, textile and paper, which are considered to be more environmentally acceptable, increased as well. Numerous life cycle analyses (LCA) recommend the use of plastic bags as environmentally more suitable, which is in contrast to the generally accepted public opinion. The increased usage of new "types" of carrier bags brings up questions about their quality, technical suitability and the credibility of their "positive ecological image". The purpose of the research was a comparative analysis of the chemical and physical properties of carrier bags from various materials. With the standardized physical analytical methods, the technical quality of bags was analyzed. The verification of the conformity of carrier bags composition with the EU Sustainable Development Guidelines was investigated with chemical analytical methods. The overall tests and analyses confirmed the findings of LCA studies. It was also concluded that bags, made from recycled plastic material, have the most suitable physical properties for multiple use even though that they are originally made for single use. Their physical and chemical properties are comparable or even better than the physical and chemical properties of bags made of paper, textile and biodegradable plastic materials and comparable with the properties of the carrier bags made from new plastic materials