PlasticsEurope
Association of Plastics Manufacturers

The difference between biodegradable and biomass-based Plastics

Today official authorities and the public have been strongly attracted to the concept coming from nature and perceived environmental advantages of bio-degradable and/or renewable resource based plastics, often referred to as “bio-plastics”. The manufacturers of plastics packaging, films and other plastics products are increasingly confronted with questions concerning the production and use of “bioplastics”.

- **Raw material sourcing and functionality are independent issues and must not be confused!** There are biomass-based plastics which are not biodegradable and there are bio-degradable plastics which are based only on fossil fuels. Independent studies show that being biodegradable or biomass-based is not synonymous with being environmental-friendly.

  - In principle almost any carbon and hydrogen source can be used as a **raw material** for plastics. Eventually the most eco-efficient route for making a plastic material should be chosen. Today, the majority of plastics are made from fossil resources. About 4% of our oil and gas consumption is used as feedstock for plastics.
    Biomass based plastics are sourced from renewable raw materials. The plastics industry already uses renewable raw materials where they are economically and technically advantageous. Currently less than one percent of the total consumption of plastics is based on renewable raw materials.

  - **Biodegradability** is an additional functionality for plastics independent of raw material use. Biodegradable plastics offer specific advantages during use and/or waste management. They are already used in the medical, packaging and agricultural sectors, where degradability can be an attractive attribute. In food packaging the concept is to dispose of the packaging by composting together with the produce in case it is overdue or spoiled. In agriculture the idea is to plough in biodegradable mulch and seed films.

  - **Biodegradability**, however, does not resolve the litter issue. Preventing litter requires a combination of awareness raising, education, the enforcement of suitable laws and sound waste management practices.

- The strength of **plastics in general** lies in their variety which allows them to be custom tailored to the application. By that they contribute to the efficient use of energy, less emissions and are an essential part of innovation.
  A peer reviewed study by Gesellschaft für umfassende Analysen (GUA) comes to the conclusion that the total substitution of plastics in all its applications by traditional non-plastic materials in Europe would increase the energy consumption

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for the production of those products by 26%. This is equal to about 22.5 million tonnes of oil or the heating and hot water needs of 40 million people. The CO_2 emissions would be around 56% higher which is equivalent to about 90% of the total CO_2 emissions from cars in Germany.

- The European plastics industry welcomes and supports all innovations and developments which enable plastics products to best meet the functional performance requirements of the respective applications. Offering biodegradability is an additional feature which may be beneficial in specific cases. Using biomass as a renewable resource is an enlargement of the raw material supply base but will only to a small extend contribute to energy and greenhouse gas savings.

- Decisions in favour of biomass-based and biodegradable plastics must be based on sound scientific criteria and a life cycle approach. It must not lead to ideological discrimination against fossil fuel based plastics with a proven performance record.

- Today, there is a balanced use of biomass-based resources for food, fossil-fuel substitution and other industrial applications such as chemicals and plastics. Due to the limited availability of arable land unreasonable support of one application leads to reduced availability of resources in other areas which may cause price increases (e.g. increased corn prices due to bio-ethanol production). Political action should concentrate on the supply side and ensure a reliable supply of biomass-based resources for all applications at a competitive price.