Bioplastic from starch: an economically and enviromentally sustainable reality

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Bioplastics from renewable origin are a new generation of plastics able to significantly reduce the environmental impact in terms of energy consumption and green-house effect in specific applications, to perform as traditional plastics when in use, and completely biodegrade within a composting cycle.

Today bioplastics and particularly starch-based plastics are used in specific industrial applications where biodegradability is required such as the composting bags and sacks, fast food serviceware (cups, cutlery, plates, straws etc.), packaging (soluble foams for industrial packaging, film wrapping, laminated paper, food containers), agriculture (much film, nursery pots, plant labels), hygiene (diaper back sheet, cotton swabs).

Moreover new sectors are growing outside biodegradability, driven by improved technical performances versus traditional materials, as in the case of biofillers for tires.

The market of starch-based bioplastics in 2001 has been estimated at about 30000ton/year, with a strong incidence of soluble foams for packaging and films. Bioplastics from renewable origin, either biodegradable or non biodegradable, still constitute a niche market which requires high efforts in the areas of material and application development; the technical and economical breakthroughs achieved in the last three years, however, open new possibilities for such products in the mass markets and specifically in the food packaging.

The presentation will review the recent industrial achievements of bioplastics taking in consideration their in-use performances, biodegradation behaviour, environmental impact and legislative attention.