

Biodegradable Bags and Bottles for Dairy Products

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Aimplas, the Plastics Technology Center located in Valencia, Spain, has completed a European project that made possible the development of biodegradable packages, such as bags, bottles and caps to contain products requiring treatments like pasteurization or sterilization. Therefore, they can contain dairy products, such as fresh milk, shakes and yoghurts with probiotics and could be thrown away together with organic wastes and turned into compost in composting conditions.

The project Biobottle, developed within the European Union's Seventh Framework Programme, has been coordinated by Aimplas and had a budget of one million euros. Seven companies and technology centers from five different countries have taken part: VLB (Germany), OWS (Belgium), CNR (Italy), Vizelpas and Espacoplas (Portugal) and finally Almuplas and Aljuan (Spain).

Economically Compostable and Viable



The monolayer bottles and caps are able to resist temperatures up to 95°C (© Aimplas)

The packages for dairy products are currently manufactured from polyethylene, which, although it is easy recyclable, it still ends its shelf life mostly in landfills, due to the odour problems that this product's wastes cause. For that reason, and given the huge amount of milk products consumed in the European Union, it is interesting to develop biodegradable and compostable packages. The aim of the project was achieving that the new biodegradable packages manufactured with the biopolymers developed within the project complied with the mechanical and thermal aspects required for these applications, as well as they passed the microbiological tests without affecting the product's organoleptic properties. The results are monolayer bottles and caps and multilayer bags able to resist temperatures up to 95°C.

By means of a reactive extrusion process, it has been achieved to modify the existing commercial material, so they fulfil the expectations and are processable by conventional methods to obtain the different packaging formats. From the new biopolymers developed, which have also passed the composting tests carried out, the packages for milk products already described will be obtained. These packages, although with the current costs of biodegradable materials, increase in less than 10 % the final cost of the packages product.

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