Biodegradable and environmental friendly component (wad) based on PVA for a cartridge.

The project consists in the design, manufacturing and launch into the market of an innovative hydrosoluble and biodegradable wad that could be used as a component for a cartridge replacing conventional plastic. This wad will be made of polyvinyl alcohol (PVA), is soluble in water, biodegradable and non-toxic. After being shot the wad itself, containing the ammunition, will dissolve in hours when placed in humid conditions and biodegrade in weeks leaving no toxic residues and/or harmful particles, contrary to a conventional cartridge wad which leaves plastic residues difficult to manage for decades. Cartridge manufactures, hunters and sporting shooters would benefit from this alternative product to the existing conventional plastic. The coordinating company Plásticos Hidrosolubles assembled a partnership consisting of the manufacturer of the biodegradable plastic material; Carmusa, eco-cartridge producer; Aiju, a technological institute with a vast experience in non conventional plastic materials; and finally a marketing organization, Alfred Feystel, supplying cartridges to a wide number of customers. The first three are based in Spain while the later one is in Germany.

Benefits

A biodegradable, compostable and water-soluble wad for a cartridge will provide an environmentally friendly solution that will eliminate waste and plastic residues from shooting ranges and wild hunting areas.

Results

- The fine tuning of the PVA formulation to meet the technical, ballistic and functional requirements of the hunting industry for an ecologic cartridge.
- The eco-innovative cartridges have been tested by experienced marksmen who gave very positive feedback, to the extent that the mechanical properties of the new product are assessed as better than those of standard cartridges.
- The manufacturing of PVA wads for shotgun cartridges by means of injection moulding, that will dissolve and biodegrade leaving no footprint under the normal atmospheric and environmental conditions found in the fields across Europe: in water (river, lake or sea) or on soil, disappearing with no environmental impact in 2-3 hour hours or 2-3 months, respectively.
- The first wads biodegradable, non toxic and water soluble for the industrial line is expected to be obtained by mid 2012 and will approximately produce 1.5 million of pieces the first year. By end 2013 it is expected to reach a market share of 10% of ecological cartridges and a portion of those used in wetlands and rainy environments.
The potential market for uptake is 700-1,200 millions cartridges. Each cartridge would replace 3.5-4 grams of PE by the new material.

**Partners and coordinator**

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<td>Alfred Feistel Waffen und Munition [2]</td>
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**Contact**

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**Budget**

Overall budget: 1,219,106,00 € (EU contribution: 50,00 %)

**Key documents**

- Project Information Sheet [5]
  PDF 100.13 KB
- Success story [6]

**In brief**

Sector: Greening Business

Duration: 01/09/2011 to 01/09/2013

Contract number: ECO/10/277370

Website: http://www.cartridge-wad.eu

**Tags:**
Related projects

- [ERUTAN] A bio-based floor covering with ERUTAN inside
- [DRIUS] Industrial implementation of a biodegradable and compostable flat micro-
- [PLA OPTICAL DISC] PLA OPTICAL DISC - A GREEN OPTICAL STORAGE MEDIUM FOR A GREENER EUROPE


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