The numbers

- 9 Partners from different European Member States are involved in this 36-month project (1 November 2013 - 30 October 2016).

- Research is conducted in 6 countries where 3 RTDs Performers, 4 Associations and 2 SMEs are involved.

> "The final output will be the consumer getting information about the real shelf-life of the product they are purchasing"
>
> ~ Dr. Silvia García Ruiz

Project Partners

Project coordinator

Dr. Silvia García Ruiz

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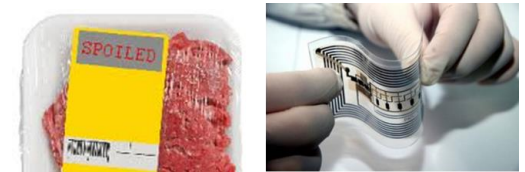
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"Innovative Packaging for the Detection of Fresh Meat Quality and Prediction of Shelf-Life"

About TOXDTECT

Product appearance is one of the main determinant of consumers' quality perceptions of meat and, for this reason, packaging and packaging-related product characteristics significantly influences consumers' meat purchase intentions and decisions. In this regard, meat sector has largely supported the development of packaging systems able to contribute to preserve product quality and safety and to provide a larger stock of meat products in the shops. All these aspects are the most important driving forces for industry efforts to invest in the development of packaging systems.

The aim of TOXDTECT project is to develop an Intelligent Packaging solution for fresh bovine meat products that will be able to determine the remaining shelf life of the product according to existing safety regulations.

"This packaging will consist of inexpensive sensors integrated into a film, for measuring, in real time, the freshness of meat. The final output will increase overall customer satisfaction by getting information about the real shelf-life of the product they are purchasing."
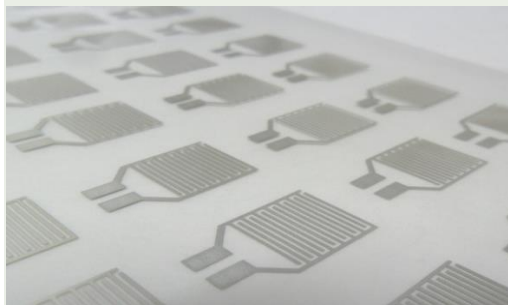
Benefits expected

A reliable method for the determination of beef quality and shelf-life directly from the product.

- **Clear labelling system**. Consumers will no longer be confused with 'best before' and 'consume by' dates since the information they get is provided in real time from the real product they are purchasing.

- Better stock management for retailers and **reduction of meat waste**.

Technical objectives

- Fabrication of arrays of sensors easily embedded within the package at low cost via printing technology.

- Development of a suitable reading device.

- Multilayer film integration by lamination process.

- Design of an electronic decision making system (software) for meat quality assessment based on predictive algorithms.

Key elements

- E-nose: **printed electrochemical sensors** to selectively detect different volatile organic compounds produced during meat spoilage.

- Innovative beef package consisting of a **multilayer film** containing a printed array of multi-analyte sensors.

- Reading device: **electronics** will power the sensors, capturing the data.

- Data mining: **intelligent decision software** to determine the quality of the meat and the remaining shelf life of the product.