

## **PROMETHEUS** - PROcess contaminants: Mitigation and Elimination Techniques for High food quality and their Evaluation Using Sensors & Simulation

**Referente:** Vincenzo Fogliano - Dipartimento di Scienza degli Alimenti

### **Project summary**

The PROMETHEUS project will help the European food industry reduce consumer exposure to food processing contaminants without affecting food quality or microbiological safety. PROMETHEUS builds on the previous EU projects HEATOX and ICARE. Its aims are (1) to understand the dynamics of formation of major Processing Contaminants, (2) to provide on-line real time methods to monitor reactions leading to contaminant formation, (3) to develop new processing technologies to mitigate contaminants but maintain the safety and sensory properties of the food and (4) to demonstrate scaling the new technologies to the industry level. Foods (infant formulas, biscuits, canned baby foods, and canned fish and vegetables) have been chosen for their nutritional importance. Processing contaminants (acrylamide, 3-monochloropropanediol esters, glycidol esters, furan, hydroxymethylfurfural and carboxymethyllysine) have been chosen for their toxicity, consumer exposure and relevance to the foods. PROMETHEUS will use a novel holistic approach of continuous real-time on-line monitoring of contaminant formation during food processing. Ambient mass spectrometry, fluorescence spectroscopy and image analysis will measure the contaminants simultaneously and allow modelling of the reactions that form contaminants and affect food quality. Innovative processing technologies will be used: vacuum baking, high hydrostatic pressure, ohmic heating, and ingredient microencapsulation. Improvement strategies will be demonstrated at industry level. The PROMETHEUS consortium has 8 research organisations and 6 industrial partners (including 4 SMEs, 1 large company and the European Confederation of Agro Food industries). The project outcome will help to protect the consumer. It will improve the competitiveness of the food industry by anticipating future contamination regulations, and help it to innovate by implementing new technologies in order to better control the safety and overall quality of their products.

**Coordinator:** ASSOCIATION DE COORDINATION TECHNIQUE POUR L'INDUSTRIE AGROALIMENTAIRE ACTIA France

### **Other participants:**

- SPECTRALYS INNOVATION Spectralys France

- AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS CSIC Spain
- UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II. UNINA Italy
- STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK RIKILT Netherlands
- HACETTEPE UNIVERSITESI HTP Turkey
- TECHNISCHE UNIVERSITAT BERLIN TUB Germany
- VYSOKA SKOLA CHEMICKO-TECHNOLOGICKA V PRAZE VSCHT Czech Republic
- CONFEDERATION DES INDUSTRIES AGRO-ALIMENTAIRES DE L'UE CIAA Belgium
- EUROQUALITY SARL EQY France
- ETI MAKINE SANAYI VE TICARET AS ETK Turkey
- THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS FERA United Kingdom
- SIRO AGUILAR, S.L. SIRO Spain
- CAPSULAE CPL France

**Start date** – 01/05/2011

**End date** - 30/04/2014

**Duration** 36

**Project cost** € 4.014.795,85

**Project Funding** € 2.999.573,00

**Contract type** Collaborative Projects (CP)