Food Chill Chain- Need for better management

European industry, retailers, food authorities and even consumers recognize that the weakest link that affects directly safety and quality of chilled products is the actual *chill chain*. Despite the proliferation of food safety regulations and the application of safety management systems such as HACCP, risk assessment studies show that foodborne disease has remained a main concern in the last decade. A significant percentage of foodborne disease can be attributed to temperature abuse in the chill chain. The systematic management of the chill chain can lead to reduced safety risk and increased quality, with a significant health and economic impact to the European society and market.

SMAS

SMAS is an integrated chill chain management system, expected to lead to an optimised handling of products in terms of both safety and quality. It stands for "Development and application of a TTI based Safety Monitoring and Assurance System for Chilled Meat Products", a 3 year project (2003-2006) carried out by 7 European Institutes/Companies and co-ordinated by the National Technical University of Athens. Funded by the EC Fifth Framework Programme (project number QLK1-2002-02545), in the key action of Food, Nutrition and Health and the "Quality monitoring and traceability in the food chain" thematic priority. Although SMAS is developed for meat products the same principles can be effectively applied to the management of the chill chain of all chilled food products.

SMAS is based on the ability to continuously monitor the storage conditions of each product with the use of **Time Temperature Integrators (TTI)**. TTI are inexpensive "smart labels" that show the time-temperature history of the food product. TTI response can be correlated to food safety and quality status at any point of the distribution chain providing an effective tool for decisions that result in improved chill chain management.

The Workshop

This is the final of a series of Workshops organized by the SMAS project. The state of the art for an improved management of the food chill and the achievements of the SMAS project will be presented and discussed. This includes

- **Problems and solutions in chill chain management**
- **recent developments and prospects of the microbiology of chilled foods**
- **tools for effective microbial growth prediction and risk assessment**
- **chilled foods shelf life modelling and prediction**
- **development and application of TTI for chilled food monitoring**
- **presentation of the SMAS chill chain management system vs the FIFO practice**
- **TTI uses and acceptance by industry and consumers**

The Workshop is addressed to all parties interested in the improvement of the chill chain : European industry, food distributors and retailers, food authorities, food researchers and consumers

Please register at: http://smas.chemeng.ntua.gr/workshop

Quality Management of the Chill Chain

International Workshop
16 December 2005

Training Center of the National Bank of Greece
Poseidonos Avenue 41-43, 16675, Glyfada, Athens, Greece

National Technical University of Athens

Agricultural University of Athens

http://smas.chemeng.ntua.gr

9:00-9:30	**Registration and Coffee**
9:30-9:35	**Opening**
9:35-10:00	**Food Safety Microbiology: research priorities for the future**

Dr. James Sheridan, *Teagasc, The National Food Center, Dublin, Ireland*

10:00-10:25　**The microbiology of meat products: past, present and future**

The meat chain; microbiology safety aspects; scientific gaps and research needs

Prof. Constantin Genigeorgis, Professor Emeritus University of California, Davis and Professor Emeritus Aristotle University of Thessaloniki, Greece

10:25-10:50　**Microbiology of spoilage of chilled products**

Microbiology of spoilage; spoilage of chilled food products;spoilage ecology as a function of process and packaging; quantitative evaluation of spoilage

Prof. George Nychas, Agricultural University of Athens, Greece

10:50-11:15　**Predictive modeling of microbial growth in the chill chain**

Predictive microbiology; microbial growth in dynamic conditions; tools for growth prediction/COMBASE

Dr. Jozsef Baranyi, Institute of Food Research, Norwhich, UK

11:15-11:40　**Modern techniques to assess shelf life and safety**

From FSO to HACCP criteria; building the models; principles of risk assessment; scenario analysis using the model

Ir. Erik Hoornstra, TNO Nutrition and Food Research, The Netherlands

11:40-12:00　**Coffee break**

12:00-12:45　**The EU-project: Safety Monitoring and Assurance System for Chilled Meat Products (SMAS)**

The objectives of the project; Time Temperature Integrators (TTI): how do they work; TTI and microbiology of chilled products; management of the chill chain

Prof. Petros Taoukis, National Technical University of Athens, Greece

12:45-13:10　**Chill chain management: From FIFO to smart packaging**

Chill chain management from expiration date labeling and First in First Out to RFID tracing and TTI monitoring: History and prospects-The global aspect

Prof. Theodore Labuza, University of Minnesota, Dept. of Food Science and Nutrition, USA

13:10-13:35　**Predicting the shelf life of chilled products**

Applicability of equations in dynamic temperature conditions in real chill chain; risk vs spoilage in risk assessment

Dr. Kostas Koutsoumanis, Aristotle University of Thessaloniki, Greece

13:35-14:00　**Current uses of TTI in the food chain**

Dr. Peter Ronnow, VITSAB, Sweden

14:00-14:30　**Consumer acceptance of the TTI-system**

Lay-out of the consumer inquiry; results of the inquiry; related aspects

Dr. Elizabeth Borch /Karin Wendin, The Swedish Institute for Food and Biotechnology, Sweden

14:30-15:00	**DISCUSSION**
15:00	**Lunch**

Development and Application of a TTI based Safety Monitoring and Assurance System for Chilled Meat Products