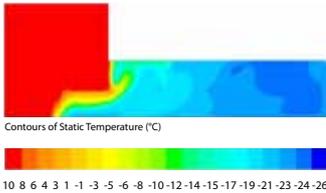


Thermal modelling of processing and transportation



For thermal modelling the CFD (“Computational Fluid Dynamics”) software Fluent is used.

Recently, Matís has assessed cold chains with regard to temperature and the temperature abuse, which fresh fish products face on the way to consumers. Results reveal a need for better temperature control in supply chains of Icelandic fresh fish products. The main objective of a project called “Thermal modelling of processing and transportation” is to improve techniques and equipment used for fish processing and transportation through analysis of cold chains, experiments and computational modelling. Temperature and time are the most important variables for the shelf life of fish products and thus, much can be earned by improving temperature control in these processes.

Collaboration

The project started in June 2008 and is a collaborative project between important Icelandic players in this field: Matís, University of Iceland, Promens Tempra, Eimskip and the fish producers Brim, Samherji and Festi/Völusteinn. Mutual goals of these partners are the following:

- Develop new packaging
- Increase knowledge of temperature control for fish transportation
- Increase and secure shelf life and value of food products
- Increased possibilities for waterborne transport because of better temperature control
- Knowledge of influence and importance of a new processing method; pre-cooling of fish portions before packing
- Increase knowledge of Computational Fluid Dynamics (CFD) and how it can be applied to the food industry
- Foundation of a consulting CFD-SME

CFD modelling

For thermal modelling the CFD (“Computational Fluid Dynamics”) software Fluent is used. Fluent offers all three modes of heat transfer to be modelled, i.e. conduction, convection and radiation. CFD models are built for phase change of fish in packaging, pre-cooling by means of a CBC freezer (“Combined Blast and Contact freezer”) and temperature distribution inside cold stores. Special attention is given to insulation of fresh fish packaging and product development in that area.

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