

## “Membrane filtration in the food and drinks industry: problems and solutions”

Thursday 7<sup>th</sup> September 2006

Venue: Room 8 West 3.22, University of Bath, Bath, UK

This One-Day technical meeting is being organised by the Food and Drink Subject Group of the Institution of Chemical Engineers. A selection of academic and industrial experts from the UK and overseas will discuss synthetic membrane filtration issues across a range of food and beverage sectors.

### Programme

- 9.30-10.00 : Registration and coffee
- 10.00-10.10 : Introduction and welcome from Mr Colin Bailey; Chairman.
- 10.10 -10.40 : Microfiltration of Milk; **Jeanette Lindau** (TetraPak, Sweden)
- Microfiltration of milk can be done for a numerous of reasons, such as removal of micro-organisms and fractionation of the milk proteins. Milk is a complex fluid and not always easy to microfilter and the pre-treatment can be very important. Examples of some problems and solutions will be presented.*
- 10.40 -11.10 : Membrane fouling: analysis and In situ 3D characterization using multi-photon microscopy; **Robert Field** (University of Oxford).
- In situ 3D characterization of protein fouling both on the surface and within the pores of the membrane was achieved using multi-photon microscopy. Time lapsed images of the fouled membrane were obtained for single suspensions and mixtures of fluorescently labelled bovine serum albumin and ovalbumin. An extension of Hermia's analysis of modes of fouling will also be given*
- 11.10 – 11.40 : Morning tea / coffee
- 11.40 – 12.10 : Membrane optimisation in the fruit juice and brewing industries; **Frank Lipnizki**, (Alfa Laval, Denmark).
- Potential applications and case studies of membrane technology for the beverage industry will be presented with focus on the fruit juice and brewing industry.*
- 12.10 – 12.40 : Ultrafiltration of tea and lignosulphonate liquors; **Mike Bird** (University of Bath)
- The UF of tea and lignosulphonate liquors are examples of industrially relevant separations. The importance of membrane parameters such as roughness, charge and hydrophobicity upon performance over multiple operational cycles will be discussed.*
- 12.40 – 2.00 : Lunch
- 2.00 – 2.30 : Membrane technology in the tea industry; **Francois-Xavier Pierre**, (Unilever R+D Colworth)
- Tea manufacturers face a number of challenges, some specific, others shared with the wine, cider or fruit juice industry. Through specific examples, it will be shown how membrane technology can respond to a variety of these challenges, with benefits for the organoleptic properties, composition or stability of the tea product.*
- 2.30 – 3.00 : Novel membrane surface science; **Chris Wright** (University of Wales, Swansea)
- Membrane separation performance within a specific process can be optimised through manipulation of the polymer membrane. Novel polymer fabrication techniques will be presented including the production of highly ordered microfiltration systems and the production of positively charged nanofiltration membranes using self assembly techniques. The current application of atomic force microscopy to optimisation or membrane systems will also be discussed.*
- 3.00 – 3.30 : Afternoon tea / coffee
- 3.30 – 4.00 : Polishing filtration of wine and cider; **Simon Avery** (Pall Filtration)
- Oenoflow Crossflow systems. One of the main objectives of the OenoFlow system is the separation of undesired particles and micro-organisms and the highest possible protection of the wine / cider quality and characteristics. The OenoFlow system can be used in all steps of winemaking or cidermaking: directly after fermentation, after cold-stabilization and prior to bottling. There will also be a case study of Oenoflow used on cider.*
- 4.00 – 4.15 : Final discussion and Close



***A map will be sent to you following registration***