

# Food Packaging



**POST-ACADEMIC COURSE**

FEBRUARY – JUNE 2013

New version: through distance learning and contact sessions

This course will give a broad and clear overview of the packaging of food products. It will start with the basics of chemical, physiological and microbiological degradation of food products and how packaging can affect these spoilage phenomena. In the next two modules, packaging materials are highlighted. Not only the production and the technical characteristics, but also special requirements and new technologies of these packaging materials are discussed. In the last module, attention is paid to the different filling techniques and to the marketing and distribution of food products.

After this course, the participants will be able to set up a good combination of food product, packaging and filling system which will deliver the desired shelf-life for a specific food product.

This course is given via 'blended learning': online video lectures will be combined with live contact sessions after each module.

## Target audience

This course discusses food packaging from multiple perspectives, which makes it an interesting programme for all players who are – directly or indirectly – involved in the food packaging industry.

- Producers and suppliers of packaging materials will gain a clear insight in the sensitivities of food products and the subsequent requirements for packaging materials.
- Producers of food products will be able to find a suitable packaging solution in a more efficient way with a good balance between price and desired quality.
- Producers and suppliers of filling systems will be able to combine the right packaging material with the chosen food product in order to achieve the desired shelf-life.

Understanding the relation between properties of food, packaging and filling system should allow participants to use packaging for innovation of food products.

### Post-academic Course Certificate granted by the Ghent University

To receive a certificate, one should attend at least 3 modules, make a cross-module project and successfully defend it.

## Scientific Coordination

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- ▶ Dimitri Adons, Verpakkingscentrum
- ▶ Tom Anthierens, Resilux
- ▶ Maarten Boghaert, BRN
- ▶ Ronny Borms, Arets Graphics
- ▶ Wim Buyle, Advanced Machinery
- ▶ Ludwig Cardon, Department of Materials Science and Engineering, Ghent University
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- ▶ Michel Gorgerin, Ineos
- ▶ Geert Jacobs, GEM-projects
- ▶ Maril Kamp, Ball Packaging Europe
- ▶ Jens Kolstad, Elopak
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- ▶ Bert Schatowitz, Intertek
- ▶ Roland ten Klooster, Packaging Design and Management, University of Twente
- ▶ Hans Van Baekel, Silgan White Cap
- ▶ Wilbert van de Corput, Goglio
- ▶ Dirk Vangeneugden, VITO
- ▶ Filip Van Impe, Belgisch Verpakkingsinstituut
- ▶ An Vermeulen, Pack4Food, Department of Food Safety and Food Quality, Ghent University
- ▶ Christian Vlasselaer, Multivac
- ▶ And others

## Introduction

First contact session with an overview of the content of the course and the other contact moments in this course and explanation of blended learning methodology. Also information about the cross-over project in order to receive the certificate.

**Date:** 28 February 2013 (13h–16h),  
Technologiepark, Zwijnaarde, Belgium.

## Module A: Effect of packaging on the chemical, physiological and microbiological spoilage of food products

The sensitivity of different food components towards (bio)chemical degradation and its consequences on food product quality (e.g. fat oxidation, discolouration, vitamin degradation) is discussed including factors that could influence these degradation reactions. Besides biochemical degradation processes, various factors influencing the microbiological quality of packaged food products are discussed with particular attention to the effect of modified atmosphere packaging on the microbiological quality of food products. This module also includes an elaborated discussion on respiring products such as fruits and vegetables and how this respiration activity affects packaging concepts.

During the live contact session, a practical exercise will be organized, dealing with the behaviour of micro-organisms in food products (predictive microbiology) as well as with the selection of packaging materials for respiring products.

**Date contact session:**

28 March 2013 (10h–13h)  
Computer exercise, Technologiepark, Zwijnaarde.

## Module B: Production and thermal-mechanical characteristics of packaging materials

The packaging industry offers different materials and combination of materials with different characteristics. This part of the course starts with an overview of the different basic packaging materials such as glass, metal, paper, carton and plastics, including additives, inks and adhesives.

The origin of the raw materials, the production method and some application possibilities will be explained. During the presentations, the currently hot items such as migration and biodegradability will be included. Special attention will be given to the heat resistance of packaging materials in relation to potential hot fill applications.

**Dates contact sessions:**

28 March 2013 (13h30–17h)  
theoretical lessons about carton packaging and polymers, Technologiepark, Zwijnaarde.

23 April 2013 (10h–18h)

Company visit (A. Schulman) + theoretical lessons about adhesives, printing techniques and migration, Technologiepark, Zwijnaarde.

## Module C: Specific requirements for packaging materials and new technologies

Firstly this module offers information on food packaging and its environmental aspects focusing amongst others on national and international waste prevention, waste policy and recycling strategies. Specific attention is also given to packaging materials based on bioplastics.

Secondly, technologies to increase the functionality of packaging materials are discussed: barrier technology including plasmatechnology and active and intelligent packaging materials.

To be able to innovate, a number of innovative aspects have to be taken into consideration. But at the same time, new products should be compatible with the existing legislation, especially concerning migration and traceability. This will be combined with a GMP-approach, based on the latest developments in the field. The use of a simulation model will be illustrated with practical examples. There will also be an extension of migration to the influence of packaging materials on aroma-components and the link will be made with loading security of secondary and tertiary packaging materials.

**Dates contact sessions:**

28 May 2013 (10h–17h)  
Theoretical lessons about barrier properties, aromas, bioplastics, primary/secondary/tertiary packaging, Technologiepark, Zwijnaarde.

29 May 2013 (10h–18h)

Company visit (RPC-Cobelplast) + computer exercise predoxy-pack + round table conference about bioplastics (environment) and migration (health), Technologiepark, Zwijnaarde.

## Module D: Filling techniques and marketing aspects of food packaging

This module integrates the information of previous modules into the final packaging concept. An overview of filling techniques and equipment, both for solid and liquid food products is given. This provides participants the knowledge and possible strategies on how to implement or modify packaging lines in their company. Topics that are discussed include: how can we apply modified atmosphere packaging? Do we need an aseptic filling system or is an ultra-clean system sufficient?

For liquid food products practical aspects have to be considered (PET, PP, HDPE). The production of these different types of bottles requires different equipment and potential customers have to know what the possibilities are in each group. For each application group, there is also the need for specific caps (dimensions, heat resistance, barrier, ...). Different factors play a role in an attractive packaging design, which should not compromise the other functions of packaging (e.g. barrier properties, environmental requests).

Finally, the module includes a practical session in which participants need to develop a packaging concept for a specific food product taking into account the obtained know-how of the different modules as well as their own experiences.

**Date contact session:**

27 June 2013 (10h – 18h)  
With an update of solid and liquid filling, case studies and a round table conference about whole supplier versus filling machine builder, Technologiepark, Zwijnaarde.

All modules are supported by the handbook ' Food Packaging : Principles and Practice' by G.L. Robertson (77,95 € incl. VAT). This book is optional for all participants.

## MORE INFORMATION AND SUBSCRIPTION

[www.ivpv.ugent.be/food](http://www.ivpv.ugent.be/food)

The course is organised through a combination of distance learning and contact sessions to limit the number of necessary travels.

## Fee

Payment occurs after reception of the invoice. All invoices are due in thirty days.  
All fees are exempt from VAT. Transfer and conversion costs are at the expense of the participant.

Module A: Effect of packaging on the chemical, physiological and microbiological spoilage of food products	€ 700
Module B: Production and thermal-mechanical characteristics of packaging materials	€ 500
Module C: Specific requirements for packaging materials and new technologies	€ 700
Module D: Filling techniques and marketing aspects of food packaging	€ 500
<b>All modules</b>	<b>€ 2.000</b>

The introductory session is free for all participants of this course.

### Reduction

- ▶ When a participant of a company subscribes for the complete course, a reduction of 20% is given to all additional subscriptions from the same company, even on single modules. Invoicing is then done by one company invoice.
- ▶ Pack4Food members receive a reduction of 20% on the prices mentioned in the table, AIG and VBIG members receive a reduction of 10%.
- ▶ Special prices for Ghent University personnel and members of Ghent University Association.
- ▶ Reductions can't be combined.

### Cancellation policy

When cancelling up to 10 days before the start of the course or module 25% of the participation fee will be charged. When cancelling less than 10 days before the start of the module, the full fee is due.

### Training cheques

Ghent University accepts:

- ▶ training cheques for employees (<http://www.vdab.be/opleidingscheques>).
- ▶ For employers we refer to the KMO-portefeuille (<http://www.kmo-portefeuille.be>; use authorization ID: DV.0103 194).

### Time and location

- ▶ This course is given via **blended learning**: online video lectures are combined with contact sessions. The online video lectures are available on a secure e-learning platform. The contact sessions consist of exercises, theoretical sessions, company visit or round table conferences.
- ▶ **Dates contact sessions:**  
Introduction day : 28 February 2013, 13h-16h  
Module A: 28 March 2013, 10h-13h  
Module B: 28 March 2013, 14h-17h and 23 April 2013, 10h-18h  
Module C: 28 May 2013, 10h-17h and 29 May 2013, 10h-18h  
Module D: 27 June 2013, 10h-18h  
Dates may change due to unforeseen reasons.
- ▶ **Location of contact sessions:**  
Ghent University, Institute for Continuing Education,  
Campus Engineering Faculty, Building Magnel, Technologiepark,  
904, 9052 Zwijnaarde, Belgium.
- ▶ Practical arrangements on the company visits are announced later.

### Language

English is used in all presentations, exercises and documentation, so a good knowledge of this language is necessary.

### Reference book

'Food packaging: Principles and Practice' by G.L. Robertson (€ 77,95 including VAT) (optional for all participants).  
The reference book is billed directly by the bookshop.

## MORE INFORMATION AND SUBSCRIPTION

[www.ivpv.ugent.be/food](http://www.ivpv.ugent.be/food)



### ORGANISATION

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### IN ASSOCIATION WITH

