

## Quality Management in Food Packaging (I690012)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits 4.0**      **Study time 120 h**      **Contact hrs**      40.0h

**Course offerings and teaching methods in academic year 2022-2023**

A (Year)	English	Kortrijk	lecture	14.0h
			excursion	4.0h
			lecture: plenary exercises	7.0h
			demonstration	2.0h
			group work	1.0h
			practicum	12.0h

**Lecturers in academic year 2022-2023**

Jacxsens, Liesbeth	LA23	lecturer-in-charge
Buntinx, Mieke	TW56	co-lecturer
Peeters, Roos	TW56	co-lecturer

**Offered in the following programmes in 2022-2023**

<a href="#">Master of Science in Sustainable Food Packaging</a>	<b>crdts</b>	<b>offering</b>
	4	A

**Teaching languages**

English

**Keywords**

Quality management – certification – quality control – quality assurance – sampling plans  
Physical-mechanical characterisation of different packaging materials and packaging concepts

**Position of the course**

Quality management in food packaging is an advanced course to be able to set up a quality management system, dealing with multiple perspectives of the definition of quality (e.g. safety, customer requirements, sustainability, physical-mechanical characterisation etc.) towards a Total Quality Management System. Different standards applied in production and trade of food contact materials are discussed (e.g. BRC, ISO). Building blocks in quality management as traceability, good practices, quality assurance and quality control (including product and process control, sampling plans) are explained. Physical-mechanical packaging material/concepts characterisation are technically explained as how to measure quality of materials. Technical quality of paper, cardboard and plastic packaging materials/concepts are studied in a practical environment.

**Contents**

PART I: Quality management systems related to packaging

1. Definitions and building blocks in quality and quality management, total quality management
2. Certification standards applied in QMS of packaging materials production and trade (e.g. ISO, BRC)
3. Traceability of food contact materials and packaging materials

4. Good practices, Quality control and assurance activities in a Total Quality Management System for packaging materials
  5. Case studies on fulfilling requirements of standards (guided exercises)
  6. Theory on sampling plan (product and process control) and exercises (guided exercises)
- PART II: Physical-mechanical packaging material/concepts characterisation
7. European standards for packaging requirements related to packaging waste
  8. Gas permeability
  9. Plastics characterisation
  10. Seal performance
  11. Paper and cardboard characterisation
  12. Conditioning and transport simulation
- PART III: Mechanical and climatological influences on packaging during transport and storage

#### **Initial competences**

Competences obtained in the previous course unit 'Food Packaging Systems: materials, equipment and packaging conditions' (insight in the properties, production and logistics of packaging material, legal requirements of packaging materials)

#### **Final competences**

- 1 Apply the principles of a quality management system for packaging material production
- 2 Analyse the building blocks of a quality management system (good practices, QC and QA activities)
- 3 Apply the principles of a sampling plan for product and process control
- 4 Evaluate the principles in most important standards and certification scheme related to production and trade of packaging materials
- 5 Evaluate the standards in packaging material characterisation
- 6 Select appropriate test equipment, test methods and test conditions for the characterisation of packaging materials
- 7 Analyse tests for packaging material/concept characterisation
- 8 to communicate validated conclusions based on critical reflection and supported by scientific explanation

#### **Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

#### **Conditions for exam contract**

This course unit cannot be taken via an exam contract

#### **Teaching methods**

Lecture: plenary exercises, Practicum, Demonstration, Group work, Excursion, Lecture

#### **Extra information on the teaching methods**

PART I : Quality management systems related to packaging (18h)

Lectures (can be online): 9 hrs

- Definitions and building blocks in quality and quality management, total quality management
- Certification standards applied in QMS of packaging materials production and trade (e.g. ISO, BRC)
- Good practices (incl. Traceability), Quality control and assurance activities in a Total Quality

Management System for packaging materials (online – lecture) – 3h

Lecture : plenary exercises: 7 hrs:

- Case studies on fulfilling requirements of standards
- Theory and Exercises on sampling plan (product and process control)

Demonstration: 2 hrs: Invited speaker to illustrate QMS in packaging materials in practice

PART II: Physical-mechanical packaging material/concept characterisation (18h)

Lectures (can be online): 5 hrs

- European standards for packaging requirements related to packaging waste
- Introduction to practicals and group task

Group task (1hr): the processing of a standard in a workable method.

Practicals (in MPR&S): 12 hrs

- Gas permeability
- Plastics characterisation
- Seal performance
- Paper and cardboard characterisation

- Conditioning (T, RV and light) and transport simulation
- PART III: Mechanical and climatological influences on packaging during transport and storage  
Study visit BIV (4h)

### **Learning materials and price**

Standards for packaging material characterisation, scientific papers, relevant websites, etc.

### **References**

- ISO9000:2015
- BRC IOP packaging
- Auto control guide FEVIA-FAVV regarding food contact materials

### **Course content-related study coaching**

Students can ask additional information during the interactive lab sessions; the teachers can also be contacted by email.

### **Assessment moments**

end-of-term and continuous assessment

### **Examination methods in case of periodic assessment during the first examination period**

Oral examination, Open book examination, Written examination with open questions

### **Examination methods in case of periodic assessment during the second examination period**

Oral examination, Open book examination, Written examination with open questions

### **Examination methods in case of permanent assessment**

Report, Participation, Assignment

### **Possibilities of retake in case of permanent assessment**

examination during the second examination period is not possible

### **Extra information on the examination methods**

Part I: PE: written exam with open questions and one question as open book with a case study on quality management (students take up the role as auditor and apply the principles of quality management on a given business situation) (50%).  
Part II: PE: oral exam evaluating insights obtained in the lab sessions (20%). Exam questions start from the lab reports and evaluate deeper insight in the related theory. NPE: Participation and behavioural evaluation includes an active participation and an interested and critical attitude in the lab sessions. The group assignment consists of the processing of a standard in a workable method and presenting it. Test results obtained in the lab sessions have to be reported in high level reports (30%). Participation during the company visit (part III) is also compulsory.

### **Calculation of the examination mark**

Part I: 50% (min 8/20 should be obtained on this part in order to pass this course unit)  
Part II: 30% PE – 20% oral exam (min 8/20 should be obtained on this part in order to pass this course unit)

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.  
The student needs to participate in all assignments and exams that are part of the evaluation (period aligned and non-period aligned). Students who eschew period aligned and/or non-period aligned evaluations for this course unit, or when one obtains a score lower than 8/20 (not rounded up) on one of both parts (period aligned or nonperiod aligned evaluation or PART I and PART II as defined above), they will fail for this course unit. In that case the end score is set to 9/20 even when the calculation

indicates a  
point of 10/20 or more.