



General Certificate in Packaging Spirits

Examination Syllabus

Version No.	Description	Author	Approval	Effective Date
6.0	GCPS Examination Syllabus	Natalie Ferreira	Deborah Kennedy	24/ 01/ 2025

Introduction

In advance of their examination, candidates will be expected to have full knowledge of the syllabus as examination questions can be asked from any of the topics as detailed below. The examination may also include some calculation questions.

1. Introduction

Introduction to Packaging

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Introduction to the packaging of spirits	<ul style="list-style-type: none">• The purpose and functions of packaging• Classification of different levels of packaging (primary, secondary and tertiary)• Examples of typical spirits packaging containers• An overview of the spirits packaging process
Introduction to spirits	<ul style="list-style-type: none">• A generic, non-legalistic definition of spirits including typical ingredients and methods of production• Characteristics which differentiate white spirits, brown spirit and flavoured spirits

2. Packaging Materials

Primary Packaging Materials – Glass Bottle

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Primary packaging	<ul style="list-style-type: none">• Primary packaging examples:<ul style="list-style-type: none">• glass bottle• closure• label• For the above examples the following will be covered:<ul style="list-style-type: none">• The usual materials of construction• The basic steps of manufacturing• The key design elements• Advantages and disadvantages of specific packages

Primary Packaging Materials – Plastic Bottle

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Primary packaging	<ul style="list-style-type: none">• Primary packaging examples:<ul style="list-style-type: none">• plastic bottle• closure• label• For the above examples the following will be covered:<ul style="list-style-type: none">• The usual materials of construction• The basic steps of manufacturing (plastic bottle only)• The key design elements• Advantages and disadvantages of specific packages

Primary Packaging Materials – Can

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Primary packaging	<ul style="list-style-type: none">• Primary packaging examples:<ul style="list-style-type: none">• can and can end• can decoration• For the above examples the following will be covered:<ul style="list-style-type: none">• The usual materials of construction• The basic steps of manufacturing (can and can end only)• The key design elements• Advantages and disadvantages of specific packages

Other types of Packaging materials

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Primary Packaging	<ul style="list-style-type: none"> • Primary packaging examples: <ul style="list-style-type: none"> • Filling Pouches • Paper • IBC's • Novel formats • For the above examples the following will be covered: <ul style="list-style-type: none"> • The usual materials of construction • The basic steps of manufacturing • The key design elements • The presence of linings where applicable • Advantages and disadvantages of specific packages

Secondary and Tertiary Packaging Materials

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Secondary packaging	<ul style="list-style-type: none"> • The purpose and functions of secondary packaging • Secondary packaging examples including: <ul style="list-style-type: none"> • paperboard multipacks • corrugated boxes • shrink wrap multipacks • For the above examples the following will be covered: <ul style="list-style-type: none"> • The usual materials of construction • The key design elements • Advantages and disadvantages
Tertiary packaging	<ul style="list-style-type: none"> • The purpose and functions of tertiary packaging • Tertiary packaging examples including: <ul style="list-style-type: none"> • Pallet • Cardboard slip sheets • Plastic film • Lock and pop • For the above examples the following will be covered: <ul style="list-style-type: none"> • The usual materials of construction • The key design elements • Advantages and disadvantages

3. Packaging Line Operation - Pre-Filler

Supply and Handling of Spirits

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • The requirement for continuous supply of spirit to the filler • The principles of spirit quality assurance • The key quality parameters that are controlled during spirit transfer to packaging • A flow diagram of the spirit supply processes.
Process	<ul style="list-style-type: none"> • The key stages of spirit transfer, storage and supply assurance • The process and purpose of: <ul style="list-style-type: none"> • Storage and blending • Filtration • Colour addition • Dilution • Chill filtering and Flocculation • Equilibration and sampling • Minimum and maximum residence times • Spirit blending procedures and calculations using spirit blend parameters • Typical procedures for maintaining spirit quality before the filler • Requirement to control spillages for safety and to reduce losses.
Technology	<ul style="list-style-type: none"> • Basic design features of plant and pipe work for the supply of spirits: <ul style="list-style-type: none"> • Storage and blending • Filtration • Colour addition • Dilution

Pre-filling Packaging Operations

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • Typical layout of a packaging line before the filler

Process	<ul style="list-style-type: none"> • The purpose of each key operational step pre-filler, including the depalletiser, conveyor systems, bottle rinsing systems and empty container inspection. • Key principles of operation for those steps listed above
Technology	<ul style="list-style-type: none"> • Depalletising systems • Conveyor systems • Bottle rinsing systems • Empty container inspection

Ready to Drink (RTD) Preparation

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • Overview of RTD - ingredients and manufacture • RTD Packaging • Methods to avoid taint and leaching • A flow diagram of the RTD preparation processes • Carbonation
Process	<ul style="list-style-type: none"> • The RTD preparation process • Oxygen pickup
Technology	<ul style="list-style-type: none"> • Blending and carbonation equipment

4. Packaging Line Operation – Filling, Closing and Pasteurisation

Filling and Closing

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • The principles of filling and closing containers
Process	<ul style="list-style-type: none"> • Key stages of filling and closing operation • Fill level control • Full container inspection • Three packers rules
Technology	<ul style="list-style-type: none"> • Filling and closing systems

Ready to Drink (RTD) Pasteurisation, Sterile Filtration, and Aseptic Filling

Topic	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • The key principles of pasteurisation • The definition of a pasteurisation unit (PU) • The key principles of sterile filtration • The key principles of aseptic filling and closing
Process	<ul style="list-style-type: none"> • Typical stages of a tunnel and flash pasteuriser operation • Monitoring and control of pasteurisation effectiveness • Typical operation of a sterile filter • Typical operation of an aseptic filler • Monitoring and control of sterile filtration and aseptic filling Effectiveness
Technology	<ul style="list-style-type: none"> • Tunnel and flash pasteurisation systems • Sterile filter systems • Aseptic filling and closing systems

5. Packaging Line Operation – Labelling and Final Package Consolidation

Labelling and Coding

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • The purpose of labelling and coding • Legal requirements for information on a package • The importance of record keeping and traceability
Process	<ul style="list-style-type: none"> • The key principles for effective label application and coding • Typical requirements associated with the use of adhesives • Advantages and disadvantages of automatic and manual labelling
Technology	<ul style="list-style-type: none"> • Labelling systems • Coding systems in packaging • The key requirements of wet glue for effective labelling

Package Consolidation and Palletising

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Overview	<ul style="list-style-type: none"> • Typical layout of a packaging line after labelling / coding

Process	<ul style="list-style-type: none"> • The purpose of each key operational step after labelling / coding, e.g. consolidation and palletisation • Key principles of operation for those steps listed above • Key quality checks during steps listed above
Technology	<ul style="list-style-type: none"> • Consolidation • Palletising systems

6. Quality

Process Control

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Process and product consistency	<ul style="list-style-type: none"> • The definitions of variation and variability • The purpose of a specification • The concept of tolerance for specification ranges • Simple statistical quality control procedures • Simple methods for recording, reporting and the interpretation of data • The principles of monitoring and adjustment to achieve product consistency • Typical applications for in-line and on-line instrumental process control

Quality Management

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Features of a quality system	<ul style="list-style-type: none"> • The definition and benefits of a quality management system • The processes to implement a quality management system • Examples of quality management systems and their key principles
Product safety	<ul style="list-style-type: none"> • The typical steps in implementing a HACCP system • The key elements of good manufacturing practices (GMPs) and good laboratory practices (GLPs)

Spirit Flavour and Sensory Assessment

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Spirit Flavour	<ul style="list-style-type: none">• Common flavour components in spirits• Standard sensory descriptors used in spirits and the use of flavour wheels
Flavour control and sensory assessment	<ul style="list-style-type: none">• The importance of flavour control in packaging• The role of the sensory assessor• Common faults / contamination that may be detected by tasting during packaging operations• Sensory assessment good practice• Methodologies for flavour control and sensory assessment

7. Hygiene

Contamination and Control

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Non-microbiological contamination	<ul style="list-style-type: none">• The definition and sources of non-microbiological contamination• Methods for detecting non-microbiological contaminants
Microbiological contamination	<ul style="list-style-type: none">• The definition and sources of microbiological contamination• Methods for detecting microbiological contaminants
Monitoring and control of contamination	<ul style="list-style-type: none">• The principle ways to achieve microbiological and nonmicrobiological control in a packaging plant• The types of chemical, light and heat sanitisers commonly used

Plant Cleaning

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
CIP systems	<ul style="list-style-type: none"> • The four key factors for effective packaging plant cleaning • The different types of detergents used and the reasons for their choice • The types of cleaning heads used and reasons for their choice • Differences between single use and recovery systems • The operating principles of CIP systems
CIP cleaning cycles	<ul style="list-style-type: none"> • Typical cleaning programmes and cycle times • The function of each of the cleaning cycle stages • Requirements for the cleaning of specific packaging equipment including the pasteuriser
CIP plant design	<ul style="list-style-type: none"> • The design features that minimise dirt accumulation in vessels and pipelines and encourage efficient cleaning • The design features which promote a hygienic working Environment
Cross contamination	<ul style="list-style-type: none"> • Prevention of cross contamination on non-dedicated lines.

8. Engineering, Environment and Safety

Engineering and Maintenance

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Approaches and tasks	<ul style="list-style-type: none"> • The key business reasons for an effective maintenance system • The features, advantages, disadvantages and applications of maintenance systems • Key maintenance tasks • The contribution of maintenance tasks to packaging plant safety, reliability, quality, economics and environmental impact

Performance improvement	<ul style="list-style-type: none"> • The key features of the following performance improvement systems: <ul style="list-style-type: none"> • Reliability Centred Maintenance (RCM) • Total Productive Maintenance (TPM) • Workplace Organisation 5 S or “lean management”.
-------------------------	---

Packaging Line Capacity and Performance

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Efficiency reporting	<ul style="list-style-type: none"> • The principles of packaging line efficiency, planning, measurement and reporting • Typical calculations used for monitoring packaging line efficiency • Visual management (VM)
The “V-curve”	<ul style="list-style-type: none"> • Line capacity rating conventions and the basic principles of a “V- curve” • Efficiency limiting factors and critical processes • Machine cycle times and maintaining a packaging line in balance
Spirit and packaging material losses	<ul style="list-style-type: none"> • The analysis of data and basic calculations of losses • The causes and control of spirit and packaging material losses

Environment and Utilities

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Sustainability and climate change	<ul style="list-style-type: none"> • The guiding principles of sustainability, and the concepts of a sustainable industry • Reduction of packaging waste • The impact of packaging waste on household (consumer) recycling • The role of carbon dioxide and the carbon cycle • The principal sources of carbon dioxide emissions

Recycling	<ul style="list-style-type: none"> • The recycling of glass bottles • The recycling of Plastic bottles • The recycling of cans • The recycling of other packaging materials • The recycling of secondary and tertiary packaging materials
Process gases	<ul style="list-style-type: none"> • The role of carbon dioxide, air and nitrogen as process gases
Steam and energy	<ul style="list-style-type: none"> • The main uses of steam in packaging • The principal energy consuming activities in packaging • Heat recovery systems
Water	<ul style="list-style-type: none"> • Categories of water: product water, process water and service water • Prevention of <i>Legionella</i> infection in water systems

Effluent

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Sources of effluent and measurement	<ul style="list-style-type: none"> • The components of effluent quality: <ul style="list-style-type: none"> • Volume • suspended solids • chemical and biological oxygen demand • pH • temperature • copper • Measurements of effluent quality • Control methods used for reducing effluent
Effluent treatment technologies	<ul style="list-style-type: none"> • Aerobic and anaerobic systems and their relevant application • Temperature, flow and pH considerations for consented discharge to sewer

Health and Safety

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:

Health and safety	<ul style="list-style-type: none"> • The essential precautions needed in the packaging plant to make it a safe working environment • Typical hazards in the packaging environment • Typical risks associated with manual handling and working with machinery • The principles of safe forklift truck operations • Explosion and fire risks associated with storing and handling spirits • Zoning requirements
Chemical safety	<ul style="list-style-type: none"> • The hazards associated with chemical cleaning and sanitising agents • Good practices for the storage of chemicals • Use of personal protective clothing • Procedures in case of accidental spillage or discharge of chemicals

Taxation of Spirit Drinks

Topics	Candidates should understand and be able to explain and describe in simple terms, or demonstrate familiarity with:
Duties and Excise	<ul style="list-style-type: none"> • Awareness that Duties and Excise will or may be payable to local authorities • Awareness that these can change • Awareness that these may also apply to import and export too.