



PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

(Qualification Number: 600/0017/X)

EXAMINATION PAPER

November 2023

J/502/5923 UNIT 02

Packaging Materials and Components

Paper B

INSTRUCTIONS TO CANDIDATES

You are required to answer and pass ALL the questions

Write your answers in the answer book provided

Wherever possible, use diagrams to illustrate your answer

This is a closed book examination

This examination paper is worth 30% of the total marks for Unit 2

Examination Time: 2 Hours

Issued under the authority of the
PACKAGING ASSESSMENT BOARD
24 October 2023

**PIABC Level 5 Diploma in Packaging Technology
Unit 2 – Packaging Materials and Components (Paper B)
November 2023**

INSTRUCTIONS TO CANDIDATES

You are required to answer ALL the questions on this paper

LEARNING OUTCOME 4

**Understand the raw materials, properties, and applications of packaging adhesives
(30 marks)**

Question 1

- A) Describe the differences between mechanical and specific (chemical) adhesion. (2 x 3 marks)
- B) Define the following terms (3 x 1 marks) and describe their importance to packaging adhesives (3 x 2 marks):
- Tack
 - Open time
 - Viscosity
- C) Identify and briefly describe the factors that affect the choice of an adhesive type for a packaging application. (5 marks)
- D) What is a hot melt adhesive? (2 mark)
- E) Identify the constituent parts of a typical hot melt adhesive used on an automated packing line for sealing corrugated cartons and explain their properties. (8 marks)

LEARNING OUTCOME 5

**Understand the different types of labels and the materials used
(30 marks)**

Question 2

A soft drink is packed in a glass bottle with an oval shaped label.

- Aa) Discuss FIVE important properties of the paper substrate for an oval wet glue paper label. (5 x 1 mark)
- b) How would these properties be assessed? (5 x 1 mark)
- B) Describe the production process for an oval wet glue paper label from concept to labels ready for despatch (excluding paper manufacture). (10 marks)
- C) Discuss the advantages and disadvantages of the following as an alternative method of decoration:
- Pressure sensitive labels (5 x 1 mark)
 - Shrink sleeves (5 x 1 mark)

Turn over for the next question

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**LEARNING OUTCOME 6
Understand closure systems and the factors that affect seals
(30 marks)**

Question 3

- A) Describe, with the use of appropriate diagrams, the closure system, including materials, design, and application method, for the following closure mechanisms and give an example where each closure type is used:
- Roll on pilfer proof closure (7 marks)
 - Induction heat seal with wad closure (7 marks)
 - Crown closure (7 marks)
- B) Identify THREE types of child resistance packaging and explain how child resistance is achieved. (3 x 2 marks)
- C) Briefly describe how child resistant packaging is assessed. (3 marks)

END OF EXAMINATION PAPER