



**PIABC LEVEL 5 DIPLOMA
IN PACKAGING TECHNOLOGY (QCF)**
(Qualification Number: 600/0017/X)

EXAMINATION PAPER

November 2017

J/502/5923 UNIT 02

Packaging Materials and Components

Paper B

Reading Time: 5 minutes

Time Allowed: 2 Hours

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

PIABC Level 5 Diploma in Packaging Technology (QCF)
Unit 2 – Packaging Materials and Components (Paper B)
November 2017

YOU ARE REQUIRED TO ANSWER **ALL** THE QUESTIONS ON THIS PAPER

Learning Outcome 4
Understand the raw materials, properties and applications of packaging adhesives

Question 1

- A) Describe the theories of mechanical, chemical and diffusion adhesion (3 x 2 marks) and provide an example of where each is used (3 x 1 mark).
- B) Describe how an emulsion adhesive sets. (3 x 1 mark)
- C) Describe how adhesive performance can be assessed. (4 marks)
- D) A hot melt adhesive is used to secure the end flaps of a printed high gloss corrugated carton. There are reports of the flaps opening. Returned samples show that all of the adhesive is on one flap and that it has peeled cleanly off the other flap. Fully discuss the possible reasons for this failure and suggest possible solutions. (7 x 2 marks)

Learning Outcome 5
Understand the different types of labels and the materials used

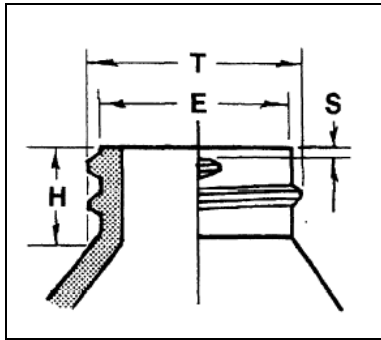
Question 2

- A) Using examples of packed products; discuss the reasons why plastic film might be chosen over paper as a material for labels. (6 x 1 mark)
- B) Discuss what you need to consider when drawing up a specification for both wet glue and self adhesive labels. Consider all stages of the supply chain when you format your answer. (8 x 2 marks)
- C) Describe FOUR tests that can be used to evaluate the performance of printed labels as part of the development process. (4 x 2 marks)

Learning Outcome 6
Understand closure systems and the factors that affect seals

Question 3

- A) a) Describe the dimensions indicated by the letters shown in the diagram below and explain their overall importance with respect to the closure. (2 marks)



- b) What dimension is usually denoted by the letter *l* and why is it important? (2 marks)
- c) Briefly describe the difference between a symmetrical and modified buttress thread for a plastic bottle. (2 marks)
- B) For the following closure mechanisms, discuss FIVE key factors to be considered to achieve an appropriate functioning system:
- a) Roll on Pilfer Proof closure on a glass bottle containing liquid. (5 x 1 mark)
- b) Ice cream wrap using pattern cold seal adhesive. (5 x 1 mark)
- c) A full aperture easy open end for a retort can of pet food. (5 x 1 mark)
- d) An induction seal on the paper laminate was contained within the plastic closure on an instant coffee jar. (5 x 1 mark)
- C) Name the TWO main tests you would conduct when evaluating the fitness for purpose of a peelable heat seal on a thermoformed film pack of red meat and state why you would perform these tests. (2 marks)
- D) What are the FOUR key control factors to achieve a heat seal? (2 marks)