Material Selection from Property Data Worksheet

Scoring guide · one credit per question · review written work against each rubric

Material Selection from Property Data

Question 1

Choice (1)

Mass equals density times volume. At equal volume, the denser panel has greater mass.

Question 2

The panel that bends less is stiffer under those test conditions because the same applied load produces less deformation.

Question 3

Choice (1)

An increase in sample mass after surface water is removed measures the water held within it.

Question 4

Measure the volume of each panel and divide mass by volume. A larger panel may weigh more even when made of a less dense material.

Selecting a Panel for a Sample Tray

Question 5

Choice (2)

Q bends 5.0 mm, exceeding the 4.0 mm limit.

Question 6

R bends 4.0 mm and takes up 1.8 percent water, meeting both limits. It has a mass of 105 g, lower than P’s 120 g. Q and S each fail a limit.

Question 7

Panel P gains 1.2 percent of 120 g. (0.012)(120 g) = 1.44 g, about 1.4 g to two significant figures.

Question 8

Choice (1)

P bends 3.0 mm and takes up 1.2 percent water. Q fails bending, while R and S exceed the new water-uptake limit.