Measuring Swelling Along Two Paper Directions

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

Measuring Swelling Along Two Paper Directions

Question 1

Across, it grows 102.2 − 100.0 = 2.2 mm. Along, it grows 100.4 − 100.0 = 0.4 mm. The difference is 1.8 mm.

Question 2

The fibers swell more across their width than along their length. Because many fibers share the same orientation, that difference gives greater overall expansion across the fibers.

Question 3

Choice (1)

Expansion along the fibers is 0.4 mm, which fits. Expansion across the fibers is 2.2 mm, which does not.

Question 4

Mark equal starting lengths in several directions and measure the change along each after the same humidity exposure. Different changes show that expansion depends on direction. Comparing fractional changes also works if starting lengths differ.