Tracking Vitamin C in Pressed Apple Juice

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

Tracking Vitamin C in Pressed Apple Juice

Question 1

The displayed half-reaction consumes electrons. Vitamin C supplies those electrons, so it loses electrons and is oxidized while iodine is reduced.

Question 2

Choice (2)

The blue starch signal means the added iodine is now in excess. The vitamin C has been used up in that portion.

Question 3

One vitamin C molecule supplies two electrons and one I_2 molecule takes up two. The ratio is 1 mol vitamin C to 1 mol I_2. The warm portion used 5.6 μmol I_2, indicating 5.6 μmol vitamin C.

Question 4

The warm portion kept 5.6 ÷ 8.0 = 0.70, or 70%, of the fresh portion’s measured vitamin C. Equivalently, half the fresh reading is 4.0 μmol and 5.6 μmol is greater. The claim is incorrect.

Question 5

Start with equal juice portions and vary the volume of air above them in closed containers. Compare the corrected amounts of iodine used after the same storage time and at the same temperature. Accept an equivalent comparison that varies air exposure and measures vitamin C while controlling the stated conditions.