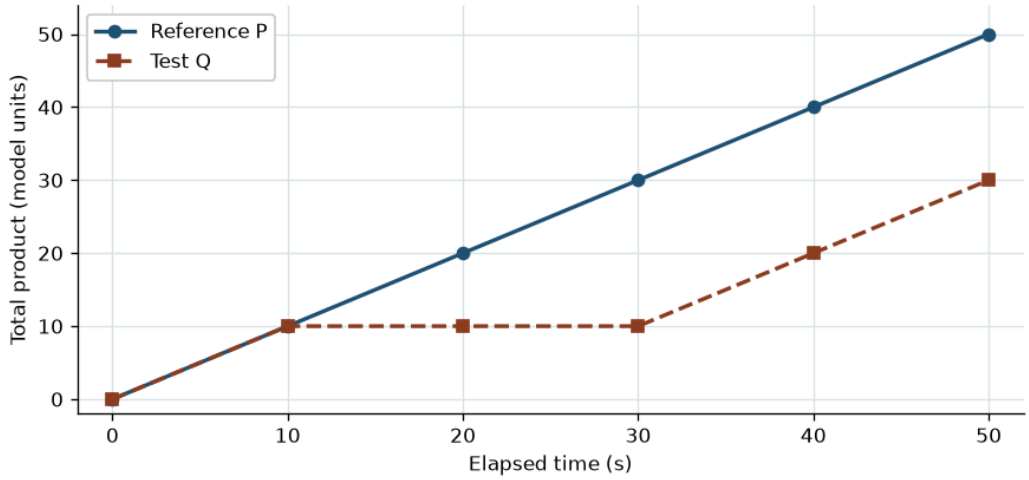
Reading a Reaction Pause From Two Curves

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A display models a liquid reacting with a solid surface to make a product. Both runs have equal amounts of each reactant and the same temperature. In the model, liquid must touch the solid for the reaction to occur. The graph shows the total product formed over time.



Cumulative product for a reference run and a test run.

1 During which interval does Q form no additional product while P keeps forming product?

(1) 0 to 10 s

(2) 10 to 30 s

(3) 30 to 40 s

(4) 40 to 50 s

2 Compare Q’s average product formation rates from 0 to 10 s and from 30 to 50 s. [1]

Answer and work

3 A student says Q’s flat interval proves that it used up a reactant. Evaluate the claim using the later readings. No reactant is added during the run. [1]

Answer and work

The class can insert a model cover that prevents liquid from touching the solid while the cover is in place. Removing the cover exposes the same solid surface again.

4 Compare two trials that differ only in use of the cover. State when to put the cover on and remove it, and what graph pattern would support interrupted contact. [1]

Answer and work