

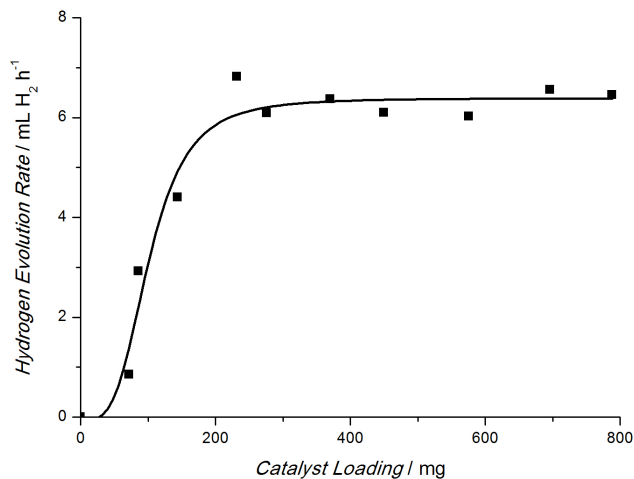
**Marks**  
**2**

- Briefly explain how a catalyst works.

- When irradiated with visible light, CdS can catalyse the production of H<sub>2</sub> from water.



The rate of H<sub>2</sub> production from 80 mL of water at constant illumination varies with the amount of catalyst present (*i.e.* CdS loading) as shown below.



Why does the rate of H<sub>2</sub> production as a function of catalyst loading plateau?

**THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.**

- What is a catalyst and, in general terms, how does it work? Make reference to an energy level diagram in your answer.

**2**

- What is a catalyst and, in general terms, how does it work? Make reference to an energy level diagram in your answer.

**2**