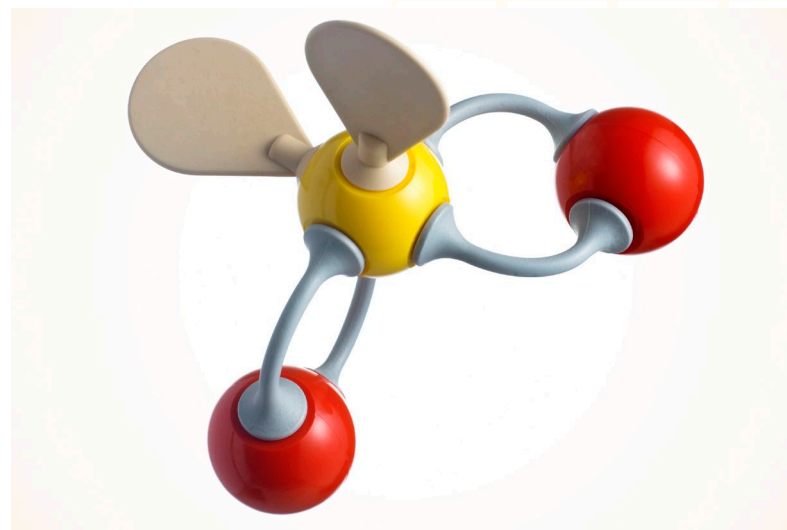


Sulfur dioxide helped create Earth's oxygen

Slide by Neil Goalby. Available from rsc.li/3RdGSzM

Earth's atmospheric oxygen content sharply rose around 2.4 billion years ago. Until now, CO₂ breakdown was seen as the primary oxygen source in our early atmosphere.

However, volcanic eruptions that took place at the time produced large amounts of sulfur dioxide. Researchers have now confirmed that ultraviolet radiation could break sulfur dioxide down into oxygen molecules and a sulfur atom, by replicating this with a vacuum ultraviolet laser in a lab. They estimate that volcanic sulfur dioxide contributes roughly 4.3% of today's atmospheric oxygen.



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Ultraviolet radiation transformed sulfur dioxide into life-giving oxygen

Questions

1. What was the source of gases in Earth's early atmosphere?
2. Write a balanced equation for the breakdown of sulfur dioxide.
3. Describe how CO₂ was converted to oxygen in Earth's early atmosphere.