

## Answer on Question#72206 – Chemistry – General chemistry

### Question:

a 100cm<sup>2</sup> gas diffused in 12sec and 100cm<sup>2</sup> of gas diffused in 40sec calculate the rate of diffusion of two gas

### Solution:

$$\text{rate of diffusion}(D) = \frac{\text{amount of gase}(n)}{\text{area}(S) \times \text{time}(t)}$$

If  $n(\text{gas1}) = n(\text{gas2}) = 1 \text{ mol}$ :

$$D(\text{gas1}) = \frac{1 \text{ mol}}{100\text{cm}^2 \times 12\text{sec}} = 0.00083 \frac{\text{moles}}{\text{cm}^2 \times \text{s}}$$

$$D(\text{gas2}) = \frac{1 \text{ mol}}{100\text{cm}^2 \times 40\text{sec}} = 0.00025 \frac{\text{moles}}{\text{cm}^2 \times \text{s}}$$

### Answer:

$0.00083 \frac{\text{moles}}{\text{cm}^2 \times \text{s}}$  is the rate of diffusion of gas 1

$0.00025 \frac{\text{moles}}{\text{cm}^2 \times \text{s}}$  is the rate of diffusion of gas 2

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