

Answer on Question 72086, Physics, Other

Question:

What is the speed of sound through an aluminium rod if a sound vibration of frequency 13 kHz has a wavelength of 40 cm ?

Solution:

We can find the speed of sound through an aluminium rod from the wave-speed formula:

$$v = f\lambda,$$

here, v is the speed of sound through an aluminium rod, f is the frequency of the sound vibration, λ is the wavelength of the sound vibration.

Then, we get:

$$v = f\lambda = 13 \cdot 10^3 \text{ Hz} \cdot 0.4 \text{ m} = 5200 \frac{\text{m}}{\text{s}}.$$

Answer:

$$v = 5200 \frac{\text{m}}{\text{s}}.$$