

## Answer on Question #71694 - Chemistry - General Chemistry

### Question:

What fraction of the total volume of a simple cubic structure is occupied by atoms? Hint:  $V_{\text{sphere}} = \frac{4}{3}\pi r^3$

### Solution:

$$k = (8 \cdot \frac{1}{8} \cdot V_{\text{atom}}) / V_{\text{unit cell}} = (4 \cdot \frac{4}{3}\pi r^3) / (2r)^3 = \pi/6 = 0,52 \text{ or } 52\%$$

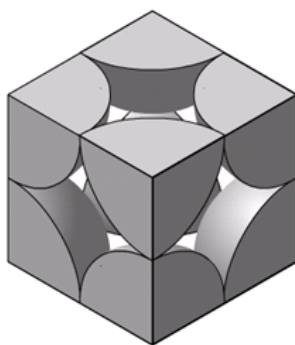


Fig. The simple cubic structure

**Answer:** The fraction of the total volume of a simple cubic structure is occupied by atoms is 0,52 or 52%.

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