

Multiple Choice Quiz: Section 3.2: Volume and Mass Fractions, Density, and Void Content

_____ 1. What is the definition of fiber volume fraction?

- A Volume of Composite/Volume of Fibers.
- B 1 plus the Matrix Volume Fraction.
- C Volume of Fibers/Volume of Composite.
- D Volume of Fibers/Volume of Matrix.

_____ 2. Several properties of a composite change when voids are present. For a 1% increase in void content, what is the range of change in these properties.

- A less than 2 percent.
- B 2 to 10 percent.
- C greater than 15 percent.
- D 2 to 15 percent.

_____ 3. What tests determine the volume fraction of voids?

- A burn or acid digestion tests.
- B shear tests.
- C impact tests.
- D tension tests.

_____ 4. What is the formula for finding the void fraction?

- A $(\text{theoretical minus experimental composite density}) / \text{experimental composite density}$.
- B $\text{void volume} / (\text{fiber volume plus composite volume})$.
- C $(\text{experimental minus theoretical composite density}) / \text{experimental composite density}$.

D $(\text{theoretical minus experimental composite density})/\text{theoretical composite density}$.

_____ 5. The decrease in mechanical properties due to voids depends on the following (check all that apply)

A shape of voids

B Young's moduli of fiber

C size of voids

D location of voids