

Civil Engineering Materials | (2nd Edition)

Problem

Find the volume of voids in the preceding problem.

Step-by-step solution

Step 1 of 3

First we will calculate the void content of a sample of loose gravel can be calculated using the equation given below:

$$\text{Void} = \frac{SG \times W - B}{SG \times W} \times 100$$

where,

specific gravity, SG is 2.68.,

density of water, W is 62.4 pcf.,

bulk density, B is 100 lb / ft³ (pcf).

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Step 2 of 3

Substitute all the above values in the above equation:

$$\begin{aligned} \text{Void} &= \frac{SG \times W - B}{SG \times W} \times 100 \\ &= \frac{2.68 \times 62.4 - 100}{2.68 \times 62.4} \times 100 \\ &= 0.4020 \times 100 \\ &= 40.20\% \end{aligned}$$

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Step 3 of 3

Now, the volume of void is equal to the percentage of voids multiply by the volume of measure:

$$\begin{aligned} \text{volume of void} &= \frac{40.20(1 \text{ ft}^3)}{100} \\ &= 40.20 \text{ ft}^3 \end{aligned}$$

Hence, the volume of voids is 40.20 ft³.

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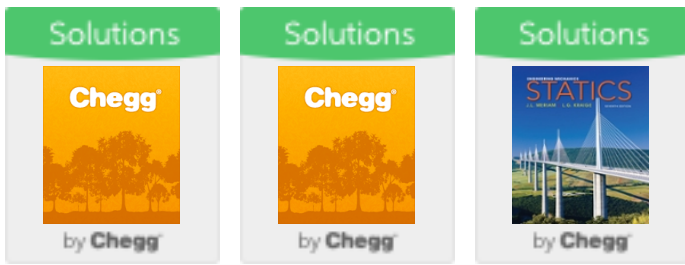
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