

## Answer on Question#48681 - Chemistry - Physical Chemistry

how many gram of dibasic acid of molar weight 200 should be present in 100ml of aqueous solution to give strength of 0.1N

### Answer

A dibasic acid has two hydrogen atoms to donate to the base.

The normality of the solution is calculated using the formula:

$$N = \frac{C}{f_{eq}}$$

where  $C$  is the molar concentration (mol/l), and  $f_{eq}$  is the equivalence factor.

Molar concentration is calculated using the formula:

$$C = \frac{n}{V} = \frac{m}{M \cdot V}$$

where  $n$  is the amount of constituent (in moles),  $m$  is the mass of constituent (in grams),  $V$  is the volume of the solution (in liters).

Given all these,

$$N = \frac{C}{f_{eq}} = \frac{m}{f_{eq} \cdot M \cdot V}, \text{ then } m = N \cdot f_{eq} \cdot M \cdot V$$

For dibasic acid, equivalence factor is  $f_{eq} = 1/2 = 0.5$

$$M = 200 \text{ g/mol}$$

$$V = 100\text{ml} = 0.1\text{l}$$

$$m = N \cdot f_{eq} \cdot M \cdot V = 0.1 \cdot 0.5 \cdot 200 \cdot 0.1 = 1\text{g}$$

The answer is 1 gram.