

Question #81424, Chemistry / General Chemistry | for completion

How many oxygen atoms are in this piece of chalk? 5.749g  $\text{CaCO}_3$

Solution:

Chalk is  $\text{CaCO}_3$

1 mole contains  $6.02 \times 10^{23}$  formula units. One formula unit contains 3 atoms of oxygen. Then,  
1 mole contains  $3 \times 6.02 \times 10^{23} = 18.06 \times 10^{23}$  oxygen atoms

$M(\text{CaCO}_3) = 100 \text{ g/mole}$

$n(\text{CaCO}_3) = m/M = 5.749/100 = 0.05749 \text{ moles}$

$N(\text{O atoms}) = 0.05749 \times 18.06 \times 10^{23} = 1.046 \times 10^{23} \text{ atoms O}$

Answer:  $1.046 \times 10^{23}$  atoms O

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