Answer on Question #71045 – Chemistry – General Chemistry

Task:

When heated barium carbonate decomposes, carbon dioxide and barium oxide are produced. How many grams of carbon dioxide are produced when 955 g of barium oxide is produced?

Solution:

The decomposition reaction equation:

$$BaCO_3 \xrightarrow{t,^oC} BaO + CO_2$$

By the reaction equation: $n(BaO) = n(CO_2).$

Then,

$$\frac{m(BaO)}{M(BaO)} = \frac{V(CO_2)}{V_m}, where\ V_m = 22.4L;\ M(BaO) = 153.34\ {}^{g}\!/_{mol}.$$

$$\mathrm{V(CO_2)} = \frac{m(BaO) * V_m}{M(BaO)} = \frac{955 * 22.4}{153.34} = 139.507(\mathrm{L}).$$

$$\mathrm{V(CO_2)} = 139.507\ L.$$

Answer: $V(CO_2)=139.507$ L.

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