

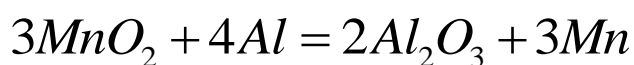
Answer on Question #71061 – Chemistry – Other

Task:

What is the mass of aluminum oxide (101.96 g/mol) produced from 1.74 g of manganese (IV) oxide (86.94 g/mol)?

Solution:

The reaction equation:



3 mol MnO_2 produce 2 mol Al_2O_3 .

By the reaction equation:
$$\frac{n(MnO_2)}{3} = \frac{n(Al_2O_3)}{2}.$$

$$n = \frac{m}{M}.$$

Then,

$$\frac{m(MnO_2)}{3 * M(MnO_2)} = \frac{m(Al_2O_3)}{2 * M(Al_2O_3)};$$
$$m(Al_2O_3) = \frac{2 * M(Al_2O_3) * m(MnO_2)}{3 * M(MnO_2)};$$
$$m(Al_2O_3) = \frac{2 * 101.96 \text{ g/mol} * 1.74 \text{ g}}{3 * 86.94 \text{ g/mol}} = 1.36 \text{ g}.$$

Answer: 1.36 g Al_2O_3 produced.