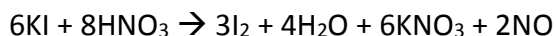


Answer on Question #71459, Chemistry / General Chemistry

A solution containing 155 g of KI is added to a solution containing 175 g of nitric acid. How many grams of NO are produced, and which reactant is in excess?

Solution



Find the amounts of reactants:

$$v(\text{KI}) = \frac{155}{166} = 0.934 \text{ (mole)}$$

$$v(\text{HNO}_3) = \frac{175}{63} = 2.78 \text{ (mole)}$$

From the equation 6 moles of KI require 8 moles of HNO₃.

Then 0.934 moles of KI require $\frac{0.934 \times 8}{6} = 1.25$ moles. **Then if we have 2.78 moles of nitric acid, it is in excess.**

1 mole of NO is produced from 3 moles of KI.

Then $\frac{0.934}{3} = 0.311$ moles of NO are produced from 0.934 moles of KI.

Find the mass of NO produced

$$m = 0.311 \times 30 = \mathbf{9.33 \text{ (g)}}$$

Answer

Nitric acid is in excess.

9.33 grams of NO are produced.

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