

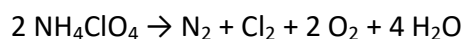
Answer on Question #76837, Chemistry / General Chemistry

Question:

Ammonium perchlorate NH_4ClO_4 is a powerful solid rocket fuel, used in the Space Shuttle boosters. It decomposes into nitrogen N_2 gas, chlorine Cl_2 gas, oxygen O_2 gas and water vapor, releasing a great deal of energy. Calculate the moles of ammonium perchlorate needed to produce 1.9 mol of water.

Solution:

The balanced equation:



So:

2 mol of NH_4ClO_4 produces 4 mol of water

X mol of NH_4ClO_4 produces 1.9 mol of water

Solving the proportion:

$$X = (1.9 \cdot 2) / 4 = 0.95 \text{ mol}$$

Answer:

0.95 mol