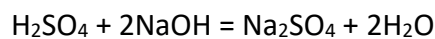# Answer on Question #82399, Chemistry / General Chemistry

1. Suppose 50. g of sulfuric acid is mixed with 54.7 g of sodium hydroxide. Calculate the minimum mass of sulfuric acid that could be left over by the chemical reaction.

Solution:

$H_2SO_4 + 2NaOH = Na_2SO_4 + 2H_2O$

$n = \dfrac{m}{M}$

$n(H_2SO_4) = \dfrac{50}{98} = 0.51$ mol

$n(2NaOH) = \dfrac{54.7}{2 \times 40} = 0.68$ mol – excess

n (NaOH) after reaction = 0.68 – 0.51 = 0.17 mol

m = n × M

m (NaOH) after reaction = 0.17 mol × 40 g/mol = 6.8 g

Answer: The minimum mass of H_2SO_4 therefore would be 0.0 g.

NaOH (6.8 g) was left over in the reaction.