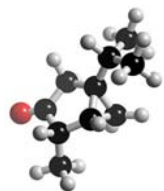


MOLE CALCULATIONS 2

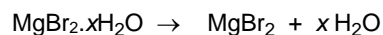
Name



- 1) 4.92 g of hydrated magnesium sulphate crystals ($\text{MgSO}_4 \cdot n\text{H}_2\text{O}$) gave 2.40 g of anhydrous magnesium sulphate on heating to constant mass. Work out the formula mass of the hydrated magnesium sulphate and so the value of n .



- 2) In an experiment to find the value of x in the compound $\text{MgBr}_2 \cdot x\text{H}_2\text{O}$, 7.30 g of the compound on heating to constant mass gave 4.60 g of the anhydrous salt MgBr_2 . Find the value of x .



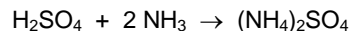
- 3) What mass of glucose must be fermented to give 5.00 kg of ethanol?



- 4) 5.00 g of iron and 5.00 g of sulphur are heated together to form iron (II) sulphide. Which reactant is in excess and what is the maximum mass of iron (II) sulphide that can be formed?



- 5) In the manufacture of the fertiliser ammonium sulphate, what is the maximum mass of ammonium sulphate that can be obtained from 2.00 kg of sulphuric acid and 1.00 kg of ammonia?



- 6) In the Solvay process, ammonia is recovered by the reaction shown. What is the maximum mass of ammonia that can be recovered from 2 tonnes of ammonium chloride and 0.5 tonnes of calcium oxide?



- 7) A mixture of anhydrous sodium carbonate and sodium hydrogencarbonate of mass 10.000 g was heated until it reached a constant mass of 8.708 g. Calculate the composition of the mixture in grams of each component. Sodium hydrogencarbonate thermally decomposes to form sodium carbonate.