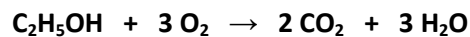


Mole-to-Mole Conversions

Molar Ratios

Ethanol combusts in the presence of oxygen according to the following reaction:



- How many moles of $\text{C}_2\text{H}_5\text{OH}$ are reacting?
- How many moles of H_2O are produced?
- How many moles of O_2 are reacting?
- How many moles of CO_2 are produced?
- How many moles of O_2 would be needed to use up 4 moles of $\text{C}_2\text{H}_5\text{OH}$?
- How many moles of $\text{C}_2\text{H}_5\text{OH}$ would be needed to produce 2 moles of H_2O ?
- How many moles of O_2 would be needed to produce 2 moles of H_2O ?
- How many moles of $\text{C}_2\text{H}_5\text{OH}$ would be needed to produce 1 mole of CO_2 ?

Mole-to-Mole Conversion

Complete the following tables for the missing information.

	Nitrogen	+	Hydrogen	→	Ammonia (NH ₃)
Equation:		+		→	
Moles:	4.62 mol	+		→	

	Magnesium	+	Oxygen	→	Magnesium oxide
Equation:		+		→	
Moles:		+	2.31 mol	→	

	Sodium	+	Water	→		+	
Equation:		+		→	2 NaOH	+	H ₂
Moles	0.7291 mol	+		→		+	

	Methane	+	Sulfur	→	Carbon disulfide	+	Hydrogen sulfide
Equation:	CH ₄	+	S ₈	→		+	H ₂ S
Moles		+		→	0.00266 mol	+	

Answer the following questions about the following reaction:



- How many moles of Fe would be needed to produce 1 mol of FeCl₂?
- How many moles of HCl would be needed to produce 1 mol of H₂O?
- How many moles of KMnO₄ would be needed to produce 3 mol of MnCl₂?
- How many moles of KMnO₄ would be needed to consume 2.5 mol of Fe?
- How many moles of KMnO₄ would be needed to produce 10 mol of FeCl₂?
- How many moles of FeCl₂ would be produced when 1 mol HCl reacts?
- How many moles of H₂O would be produced when 1 mol of HCl reacts?
- How many moles of MnCl₂ would be produced when 2.6×10^{-3} mol of KMnO₄ reacts?
- How many moles of H₂O would be produced when 5.31×10^{-2} mol of Fe reacts?