

Balancing Equations Handout #2 Balance these skeleton reactions. Use phase symbols, indicate what reaction type they are (S, D, SR, DR, or Comb)	Reaction type
$\underline{\hspace{1cm}} \text{C}_3\text{H}_{8(\text{G})} + \underline{\hspace{1cm}} \text{O}_{2(\text{G})} \rightarrow$	
$\underline{\hspace{1cm}} (\text{NH}_4)_2\text{S}_{(\text{AQ})} + \underline{\hspace{1cm}} \text{Al}(\text{NO}_3)_3(\text{AQ}) \rightarrow$	
$\underline{\hspace{1cm}} \text{Ba}_3\text{P}_{2(\text{S})} \rightarrow$	
$\underline{\hspace{1cm}} \text{Al} + \underline{\hspace{1cm}} \text{O}_{2(\text{G})} \rightarrow \underline{\hspace{1cm}} \text{Al}_2\text{O}_{3(\text{S})}$	
$\underline{\hspace{1cm}} \text{Na}_2\text{SO}_{4(\text{AQ})} + \underline{\hspace{1cm}} \text{SrCl}_{2(\text{AQ})} \rightarrow$	
$\underline{\hspace{1cm}} \text{Fe}_{(\text{S})} + \underline{\hspace{1cm}} \text{CuCl}_{2(\text{AQ})} \rightarrow \underline{\hspace{1cm}} \text{FeCl}_{3(\text{AQ})} + \underline{\hspace{1cm}} \text{Cu}_{(\text{S})}$	
$\underline{\hspace{1cm}} \text{C}_8\text{H}_{18} + \underline{\hspace{1cm}} \text{O}_{2(\text{G})} \rightarrow$	
$\underline{\hspace{1cm}} \text{Co}_{(\text{S})} + \underline{\hspace{1cm}} \text{S}_{(\text{S})} \rightarrow \underline{\hspace{1cm}} \text{Co}_2\text{S}_{3(\text{S})}$	
$\underline{\hspace{1cm}} \text{KNO}_{3(\text{S})} \rightarrow \underline{\hspace{1cm}} \text{KNO}_{2(\text{S})} + \underline{\hspace{1cm}} \text{O}_{2(\text{G})}$	
$\underline{\hspace{1cm}} \text{Cl}_{2(\text{G})} + \underline{\hspace{1cm}} \text{LiBr}_{(\text{AQ})} \rightarrow$	
$\underline{\hspace{1cm}} \text{Al}(\text{NO}_3)_3(\text{AQ}) + \underline{\hspace{1cm}} (\text{NH}_4)_2\text{SO}_{4(\text{AQ})} \rightarrow$	
$\underline{\hspace{1cm}} \text{Pb}(\text{NO}_3)_2(\text{AQ}) + \underline{\hspace{1cm}} \text{LiF}_{(\text{AQ})} \rightarrow$	
$\underline{\hspace{1cm}} \text{BeF}_{2(\text{S})} \rightarrow \underline{\hspace{1cm}} \text{Be}_{(\text{S})} + \underline{\hspace{1cm}} \text{F}_{2(\text{G})}$	

ANSWERS	Reaction type
$\text{C}_3\text{H}_{8(\text{G})} + 5\text{O}_{2(\text{G})} \rightarrow 3\text{CO}_{2(\text{G})} + 4\text{H}_2\text{O}_{(\text{G})}$	Comb
$3(\text{NH}_4)_2\text{S}_{(\text{AQ})} + 2\text{Al}(\text{NO}_3)_{3(\text{AQ})} \rightarrow 6\text{NH}_4\text{NO}_{3(\text{AQ})} + \text{Al}_2\text{S}_{3(\text{S})}$	DR
$\text{Ba}_3\text{P}_{2(\text{S})} \rightarrow 3\text{Ba}_{(\text{S})} + 2\text{P}_{(\text{S})}$	D
$4\text{Al} + 3\text{O}_{2(\text{G})} \rightarrow 2\text{Al}_2\text{O}_{3(\text{S})}$	S
$\text{Na}_2\text{SO}_{4(\text{AQ})} + \text{SrCl}_{2(\text{AQ})} \rightarrow 2\text{NaCl}_{(\text{AQ})} + \text{SrSO}_{4(\text{S})}$	DR
$2\text{Fe}_{(\text{S})} + 3\text{CuCl}_{2(\text{AQ})} \rightarrow 2\text{FeCl}_{3(\text{AQ})} + 3\text{Cu}_{(\text{S})}$	SR
$2\text{C}_8\text{H}_{18} + 25\text{O}_{2(\text{G})} \rightarrow 16\text{CO}_{2(\text{G})} + 18\text{H}_2\text{O}_{(\text{G})}$	Comb
$2\text{Co}_{(\text{S})} + 3\text{S}_{(\text{S})} \rightarrow \text{Co}_2\text{S}_{3(\text{S})}$	S
$2\text{KNO}_{3(\text{S})} \rightarrow 2\text{KNO}_{2(\text{S})} + 3\text{O}_{2(\text{G})}$	D
$\text{Cl}_{2(\text{G})} + 2\text{LiBr}_{(\text{AQ})} \rightarrow \text{Br}_{2(\text{L})} + 2\text{LiCl}_{(\text{AQ})}$	SR
$2\text{Al}(\text{NO}_3)_{3(\text{AQ})} + 3(\text{NH}_4)_2\text{SO}_{4(\text{AQ})} \rightarrow \text{Al}_2(\text{SO}_4)_{3(\text{S})} + 6\text{NH}_4\text{NO}_{3(\text{AQ})}$	DR
$\text{Pb}(\text{NO}_3)_{2(\text{AQ})} + 2\text{LiF}_{(\text{AQ})} \rightarrow \text{PbF}_{2(\text{S})} + 2\text{LiNO}_{3(\text{AQ})}$	DR
$\text{BeF}_{2(\text{S})} \rightarrow \text{Be}_{(\text{S})} + \text{F}_{2(\text{G})}$ (balanced as is)	D