Chemistry 30

Unit 6: Redox Reactions and Electrochemistry

Practice Set 2: Recognizing Redox Reactions

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1. For each of the following reactions, complete the summary table below the equation. If an element does not undergo any change, leave the last two columns blank

a. $4\ HCl + O_2 \rightarrow 2\ H_2O + 2\ Cl_2$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
H		→				
Cl		→				
O		→				

b. $4\ Al_{(s)} + 3\ O_{2(g)} \rightarrow 2\ Al_2O_3$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
Al		→				
O		→				

c. $Fe_{(s)} + SnCl_{2(aq)} \rightarrow FeCl_{2(aq)} + Sn_{(s)}$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
Fe		→				
Sn		→				
Cl		→				

d. $PbO_2 + 4\ HI \rightarrow I_2 + PbI_2 + 2\ H_2O$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
Pb		→				
O		→				
H		→				
I (to I_2)		→				
I (to PbI_2)		→				

2. For each of these reactions, determine whether or not it is a redox reaction. If any are, identify oxidizing and reducing agents in those reactions.

a. $CaBr_2 + Pb(NO_3)_2 \rightarrow PbBr_2 + Ca(NO_3)_2$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
		→				
		→				

b. $P_4 + 5O_2 \rightarrow P_4O_{10}$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
		→				
		→				

c. $SnCl_2 + 2\ FeCl_3 \rightarrow 2\ FeCl_2 + SnCl_4$

element	Initial Ox. No		Final Ox. No.	e^- gained or lost	Oxidized or reduced	Agent
		→				
		→				