

HW # 4-4 Types of Redox Reactions WKS

(Taken from book pg. 153-154 #39, 42, 52-54, 56; pg. 157 #122 and a few extra Predicting Products.

4.36 True or false? All combustion reactions are redox reactions.

4.42 a) What is the requirement for an element to undergo disproportionation reactions?

b) Name 5 common elements that are likely to take part in such reactions.

4.52 Use your reduction potential chart to determine which of these metals--Au, Li, Hg, Ni, Ca, Pt—react

a) with acid _____

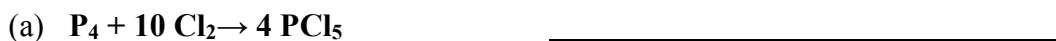
b) with water _____

4.53 On the basis of oxidation number considerations, one of the following oxides would not react with molecular oxygen: NO, N₂O, SO₂, SO₃, P₄O₆. Which one? Why?

Hint: The highest oxidation number possible for nitrogen is +5 because N has only 5 valence electrons, so it can only "lose" 5 electrons to reach its maximum.

S's highest oxidation # is _____. P's highest oxidation # is _____.

4.56 Classify the following redox reactions as either combination, decomposition, metal displacement, halogen displacement, hydrogen displacement, combustion or disproportionation.

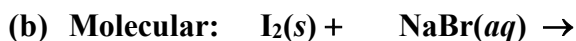


4.54 For each of the reactions below, write balanced molecular and net ionic equations. Then, based on the reduction potential chart, determine whether each reaction would actually occur. Briefly justify your answer.



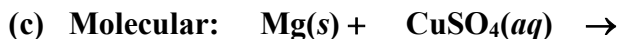
Net Ionic:

Does the reaction occur? Justify.



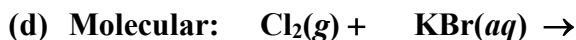
Net Ionic: :

Does the reaction occur? Justify.



Net Ionic:

Does the reaction occur? Justify.



Net Ionic:

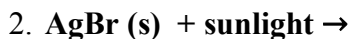
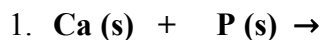
Does the reaction occur? Justify.



Net Ionic:

Does the reaction occur?

A. Predict the products of the following two reactions:



4.122 HCl is not an oxidizing agent in the same sense that sulfuric acid and nitric acid are. Explain why the chloride ion (from HCl) is not an oxidizing agent, but sulfate ions (from H_2SO_4) and nitrate ions (from HNO_3) are.