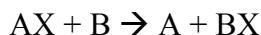


Chemical Reactions 5

Single Replacement Reactions

INFORMATION

Single replacement reactions involve the exchange of an ion from a compound to a free-state element. Remember the general form:



For example, a free-state (unbonded) metal can replace a metal that is part of a compound, or a free-state nonmetal can replace a nonmetal that is part of compound.

Critical Thinking Activity

Examine the reactants and products in the following compounds and find the patterns that take place in these reactions. Create groups for similar reactions, and synthesize a set of rules to describe the various subtypes of single replacement reactions ("NR" indicates that no reaction occurs).

1. $K + LiCl \rightarrow NR$
2. $Sr + MnO \rightarrow SrO + Mn$
3. $Ni + PbCl_2 \rightarrow NiCl_2 + Pb$
4. $Mn + AlP \rightarrow NR$
5. $Cl_2 + LiF \rightarrow NR$
6. $Ba + HCl \rightarrow BaCl_2 + H_2$
7. $Au + AgCl \rightarrow NR$
8. $Sn + HBr \rightarrow SnBr_2 + H_2$
9. $Li + H_2O \rightarrow LiOH + H_2$
10. $Na + BaO \rightarrow NR$
11. $Cl_2 + NaBr \rightarrow NaCl + Br_2$
12. $Al + H_2O \rightarrow NR$
13. $Zn + HCl \rightarrow ZnCl_2 + H_2$
14. $Ag + HNO_3 \rightarrow NR$
15. $Co + H_2O \rightarrow NR$
16. $I_2 + KCl \rightarrow NR$
17. $2Fe + 3PbO \rightarrow Fe_2O_3 + 3Pb$
18. $Ca + PtF_4 \rightarrow CaF_2 + Pt$
19. $Mg + 2H_2O \rightarrow Mg(OH)_2 + H_2$
20. $Pb + 2HCl \rightarrow PbCl_2 + H_2$
21. $Zn + CaO \rightarrow NR$
22. $Hg + CoS \rightarrow NR$
23. $Ag + HI \rightarrow NR$
24. $Fe + H_2O \rightarrow NR$
25. $Cu + H_2SO_4 \rightarrow NR$