

The Activity Series for Single Displacement Reactions

CHEM 30A

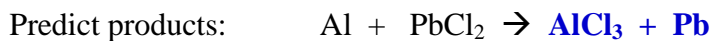
<u>Activity Series:</u>	
Metals and H	Non-metals (Halogens)
K	F ₂
Ca	Cl ₂
Na	Br ₂
Mg	I ₂
Al	
Zn	
Fe	
Ni	
Sn	
Pb	
H	
Cu	
Ag	
Hg	
Au	

↑
Increasing Activity

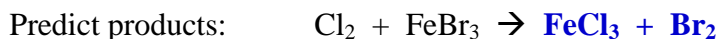
Higher oxidation potential
(greater tendency to form cations)

Higher reduction potential
(greater tendency to form anions)

A more active element (higher on the table above) will form an ion and displace the ion of like charge from the compound. The displaced ion will become a neutral element (see diatomic elements below).

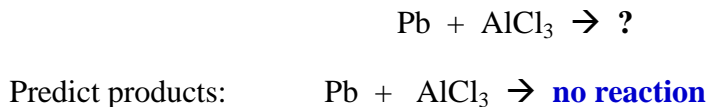


Al forms cations, and is more active than Pb

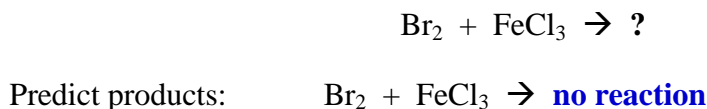


Cl forms anions, and is more active than Br

A less active element (lower on the table) cannot displace the ion from the compound, therefore, there will be no reaction.



Pb forms cations, but is less active than Al



Br forms anions, but is less active than Cl

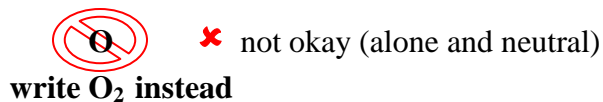
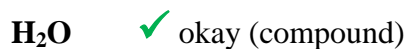
Diatomic elements:

There are seven elements that exist as diatomic (two atom) neutral molecules:



These elements can have a subscript of one if they are an ion or part of a compound, but will pair up (subscript of two) when alone and neutral.

Example: oxygen



When a non-metal ion is being displaced, be sure to check whether or not the neutral element produced is diatomic.