

REGULAR LAB 06b: Displacement Reactions

Aim To observe, a number of REDOX reactions

Apparatus Spot plate, tweezers, pipets, magnifying glasses

Chemicals Solutions of the following; copper(II) chloride, hydrochloric acid, magnesium chloride, iron(III) chloride. Steel wool, magnesium metal, copper metal, iron metal.

Method

1. Clean three pieces of copper metal with steel wool, wipe them with a paper towel and using the tweezers place them into each of three wells on the spot plate.
2. Using a pipet, add enough HCl to cover the copper in the first well. Cover the copper in the second well with MgCl₂ and the copper in the third well with FeCl₃. Use the magnifying glass to help observe any evidence of chemical changes (e.g. bubbles, change of color etc.). **RECORD your observations in the results table.**
3. Repeat steps #1 and #2 using magnesium metal in clean wells on the spot plate with HCl, CuCl₂ and FeCl₃.
4. Repeat steps #1 and #2 using iron metal in clean wells on the spot plate with HCl, CuCl₂ and MgCl₂.

Results

Record your **observations** in the table below.

Metals	Solutions			
	HCl	CuCl₂	MgCl₂	FeCl₃
Cu				
Mg				
Fe				

Conclusion/Calculation

In the table below write chemical equations.

- Write equations for any reactions that you observe. If there is no reaction say so.

Metals	Solutions			
	HCl	CuCl ₂	MgCl ₂	FeCl ₃
Cu				
Mg				
Fe				

- Below are a set of similar, potential reactions that may take place between other metals and solutions. In each case predict if a reaction will occur by adding the products, balancing the equation and completing the table. If no reaction will occur write "NO REACTION".

POTENTIAL REACTANTS		PRODUCTS (or NO REACTION)	SPECIES THAT IS OXIDIZED	SPECIES THAT IS REDUCED	TYPE OF REACTION
Pb _(s) + HNO _{3(aq)}	→				
Ag _(s) + MgSO _{4(aq)}	→				
Zn _(s) + HCl _(aq)	→				
Al _(s) + AuCl _{3(aq)}	→				