1 Calcium hydroxide, used to neutralize acid spills, reacts with hydrochloric acid according to the equation. If you have spilled 6.3 mol of HCl and put 2.8 mol of calcium hydroxide on it, which substance is the limiting reactant (LR)?

\[ \text{Ca(OH)}_2 + 2\text{HCl} \rightarrow \text{CaCl}_2 + 2\text{H}_2\text{O} \]

A calcium hydroxide
B hydrochloric acid
C calcium chloride
D water

2 Chlorine can replace bromine in bromide compounds forming a chloride compound and elemental bromine. The following equation is an example. When 0.855 g of chlorine and 3.205 g of potassium bromide are mixed in solution, which is the LR?

\[ 2\text{KBr}(aq) + \text{Cl}_2(aq) \rightarrow 2\text{KCl}(aq) + \text{Br}_2(l) \]

A Chlorine
B Potassium bromide
C Potassium
D Bromine

3 Heating zinc sulfide in the presence of oxygen yields the following reaction. If 1.72 mol of sulfide is heated in the presence of 3.04 mol of oxygen, which reactant will be used up? Balance the equation first.

\[ \text{ZnS} + \text{O}_2 \rightarrow \text{ZnO} + \text{SO}_2 \]

A Zinc
B Sulfur
C Oxygen
D Zinc sulfide

4 In the production of copper from ore containing copper (II) sulfide, the ore is first roasted to change it to the oxide according to the following equation. If 100. g of copper (II) sulfide and 56. g of oxygen are available, what is the LR?

\[ 2\text{CuS} + 3\text{O}_2 \rightarrow 2\text{CuO} + 2\text{SO}_2 \]

A Copper
B Sulfur
C Copper sulfide
D Oxygen
If 100. g of copper (II) sulfide and 56. g of oxygen are available, how much of the excess reactant is left over?

$$2\text{CuS} + 3\text{O}_2 \rightarrow 2\text{CuO} + 2\text{SO}_2$$

- A 50.2 g
- B 5.8 g
- C 64 g
- D 1.4 g