

MEMORIZE!!!

Table 5-1
COMMON STRONG ACIDS
AND STRONG BASES

ACIDS	BASES
HCl	LiOH
HBr	NaOH
HI	KOH
HClO ₄	RbOH
HNO ₃	CsOH
H ₂ SO ₄ *	Ca(OH) ₂
	Sr(OH) ₂
	Ba(OH) ₂

*H₂SO₄ ionizes in two distinct steps. It is a strong acid only in its first ionization step (see page 609).

Table 5-2
SOME COMMON GAS-FORMING REACTIONS

ION	REACTION
HSO ₃ ⁻	HSO ₃ ⁻ + H ⁺ → SO ₂ (g) + H ₂ O
SO ₃ ²⁻	SO ₃ ²⁻ + 2 H ⁺ → SO ₂ (g) + H ₂ O
HCO ₃ ⁻	HCO ₃ ⁻ + H ⁺ → CO ₂ (g) + H ₂ O
CO ₃ ²⁻	CO ₃ ²⁻ + 2 H ⁺ → CO ₂ (g) + H ₂ O
S ²⁻	S ²⁻ + 2 H ⁺ → H ₂ S(g)
NH ₄ ⁺	NH ₄ ⁺ + OH ⁻ → NH ₃ (g) + H ₂ O

Handwritten note:
K₂CO₃ + HCl → KCl + H₂O + CO₂ (g)
Na₂CO₃ + HCl → NaCl + H₂O + CO₂ (g)
CaCO₃ + HCl → CaCl₂ + H₂O + CO₂ (g)

Handwritten notes:
20
HCl → bubbles
+ HCl - bubbles
a - in H₂O + O₂ + H₂

Table 5-3
BEHAVIOR OF SOME COMMON METALS WITH MINERAL ACIDS*

REACT TO PRODUCE H ₂ (g)	DO NOT REACT
alkali metals (Group 1A) ^b	Cu, Ag, Au, Hg
alkaline earth metals (Group 2A) ^b	
Al, Zn, Fe, Sn, Pb	

Handwritten note:
NO₃⁻ is not reduced

*A mineral acid (e.g., HCl, H₂SO₄, HNO₃) is one in which the only possible reduction half-reaction is the reduction of H⁺ to H₂. Some additional possibilities for metal-acid reactions are considered in Chapter 21.
^bWith the exception of Be and Mg, all Group 1A and Group 2A metals also react with cold water to produce H₂(g). (The metal hydroxide is the other product.)

TABLES FROM GENERAL CHEMISTRY, PETRUCCI AND HARWOOD 6TH E