



Lesson 16: Acids and Bases (Nelson Textbook
Pages 190-193)

Learning Goals

- I can:
 - Identify and name acids and bases.
 - Write formulae for acids and bases

Acids

- The **properties of acids** result from **hydrogen ions, H⁺**
- All acids release **hydrogen ions** in water → conduct electricity.
- **Strong acids** release many more hydrogen ions than weak acids.
- Acids in this course all start with “H”. For example HCl_(aq) hydrochloric acid
- Aq stands for “aqueous” which means dissolved in water
- Acids **MUST** be in water to release H

Strong vs. Weak Acid

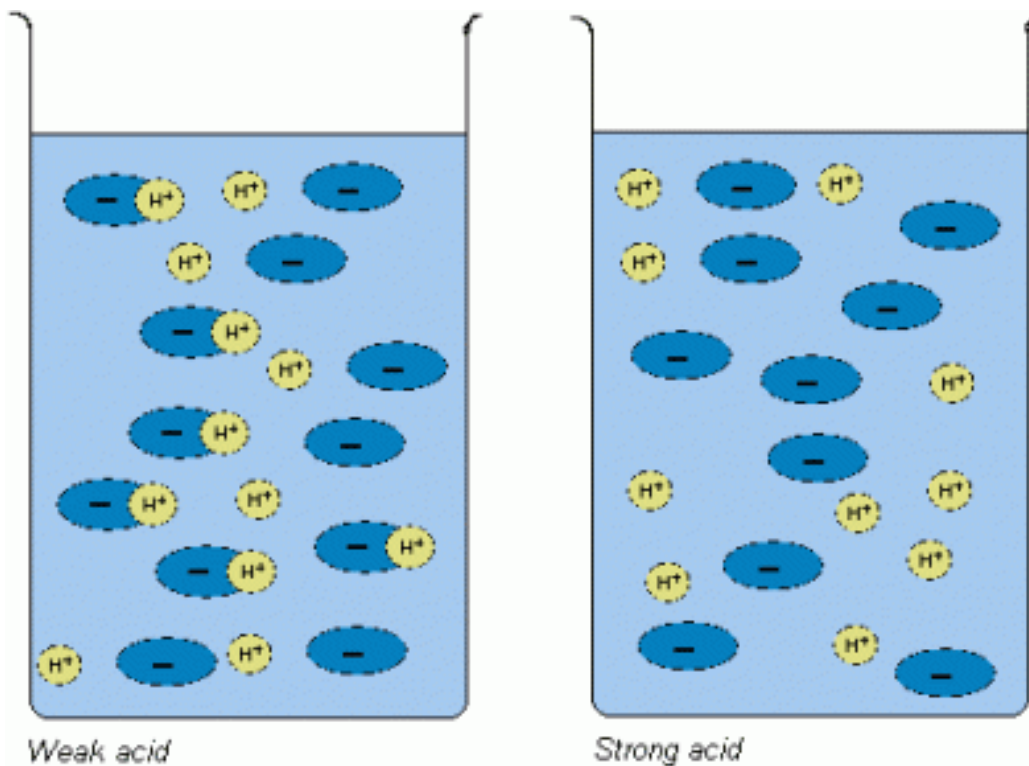


Table 1 Some Common Acids

Name	Chemical formula	Ions formed when mixed with water
hydrochloric acid	HCl	H ⁺ Cl ⁻
hydrofluoric acid	HF	H ⁺ F ⁻
nitric acid	HNO ₃	H ⁺ NO ₃ ⁻
sulfuric acid	H ₂ SO ₄	2H ⁺ SO ₄ ⁻²
acetic acid	HCH ₃ COO	H ⁺ CH ₃ COO ⁻

Chemical Properties of Acids

- Dissolve in water, conduct electricity, taste **sour**
- Turns a chemical called “**litmus**” from **BLUE to RED**
- Reacts with (corrodes) certain metals – **corrosive** (sulfuric acid and nitric acid).
- Reacts with **carbonate compounds**, such as baking soda

Uses for Weak Acids

Acid (common name)	Source or Use
vinegar (10% acetic acid)	salad dressing
citric acid	fresh fruit
ascorbic acid	vitamin C
lactic acid	sour cream
carbonic acid	carbonated soft drinks
acetylsalicylic acid	aspirin

Uses for Strong Acids

- **Strong acids** are used to make steel, plastics & detergents.

Acid	Use
Hydrochloric acid	<ul style="list-style-type: none">● Stomach acid● Adjusting the acidity of pool water
Sulfuric acid	<ul style="list-style-type: none">● Car batteries● Making detergents● Cleaning steel

Chemical Properties of Bases

- The properties of bases result from **hydroxide ions, OH⁻**
- All bases release **hydroxide ions** in water → conduct electricity.
- **Strong bases** release many more hydroxide ions than weak acids.
- Dissolve in water, conduct electricity, taste **bitter**, feel **slippery**
- Turns **litmus paper** from **RED to BLUE**
- Corrodes tissue, do not corrode metals

Uses of Weak Bases

Base	Source or Use
sodium bicarbonate	baking soda, used in baked goods
potassium sulfide	food preservative
aluminum hydroxide	antacid (e.g., Maalox)

Uses of Strong Bases

Base	Source or Use
sodium hydroxide	drain cleaner
potassium hydroxide	soap
aluminum hydroxide	window cleaner

• **Strong bases** are used to make cleaning products. E.g. potassium hydroxide (soap)

Table 2.10 Comparing Properties Used To Identify Acids and Bases

Property	Acids	Bases
Taste	taste sour	taste bitter
Texture (feel)	have no characteristic texture	have a slippery texture
Conductivity	conduct electric current when dissolved in water	conduct electric current when dissolved in water
Corrosion	corrode living and once-living tissue, as well as metals	corrode living and once-living tissue
Chemical reaction with metals	are reactive with metals	are not reactive with metals
*Chemical reaction with litmus paper	turn blue litmus paper red	turn red litmus paper blue
*Chemical reaction with each other	lose many of their properties when they react with bases	lose many of their properties when they react with acids