PHARM.D • YEAR 1

Pharmaceutical Inorganic Chemistry

CHAPTER 12

Acidifiers

PPT CHAPTER COVER



DOCTOR OF PHARMACY

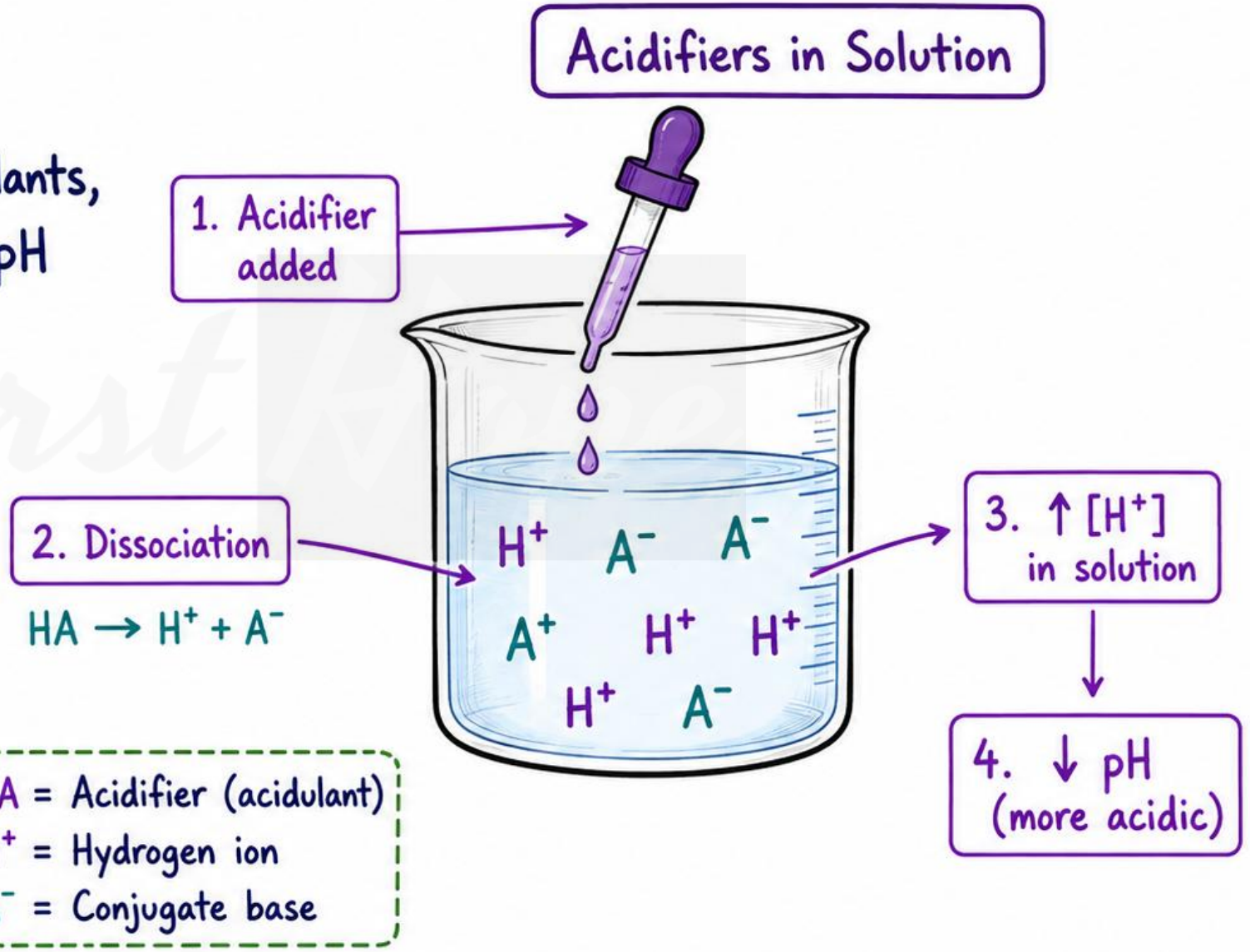
Acidifiers: Definition and Classification

Definition:

- Acidifiers, also known as acidulants, are substances that lower the pH of a solution, making it more acidic.

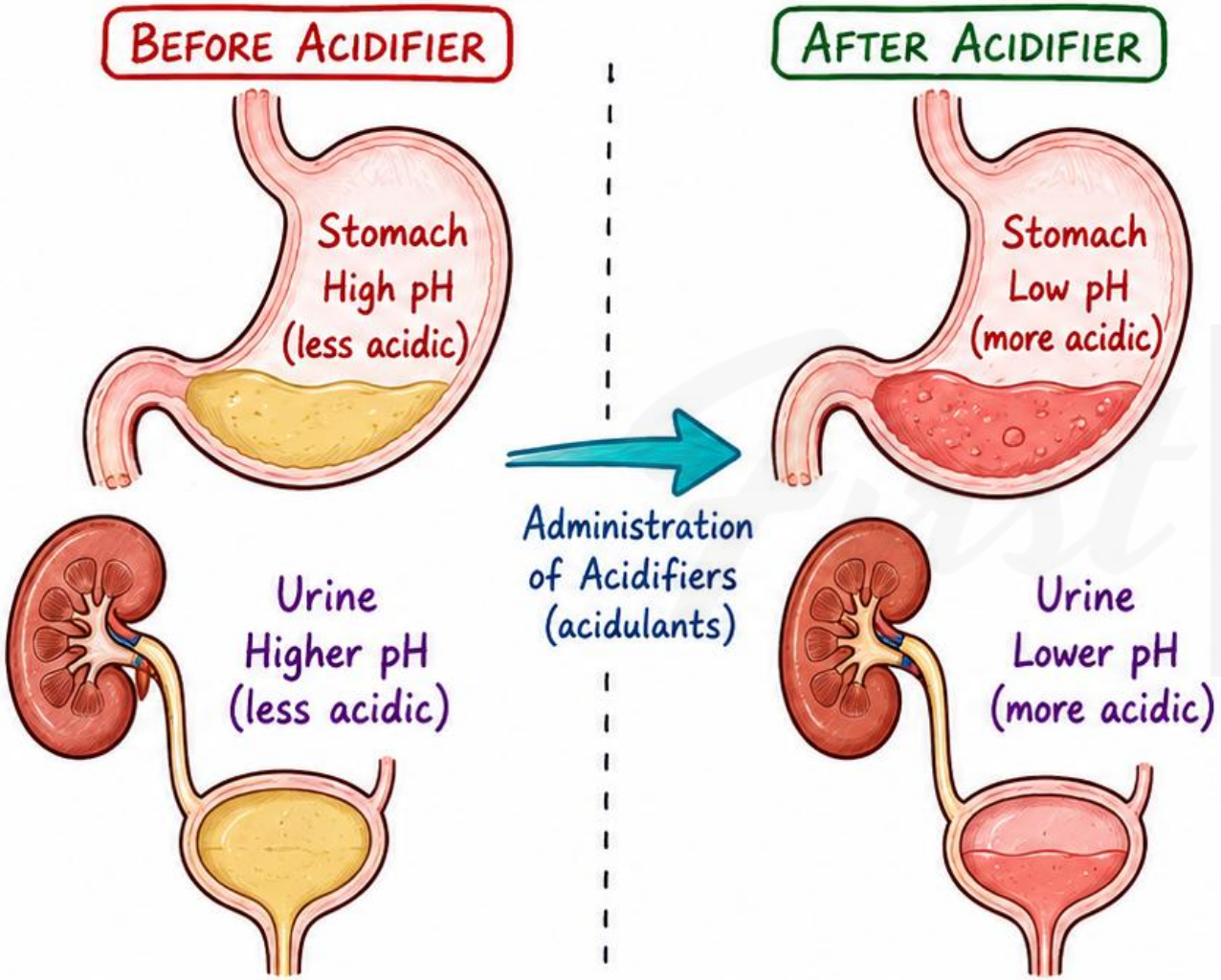
Key Point:

- Acidifiers can be classified based on their origin, chemical nature, or function.



HA = Acidifier (acidulant)
H^+ = Hydrogen ion
A^- = Conjugate base

Gastric and Urinary Acidifiers



Acidifier + H_2O ⟶ H_3O^+ (↑ acidity) + Conjugate base

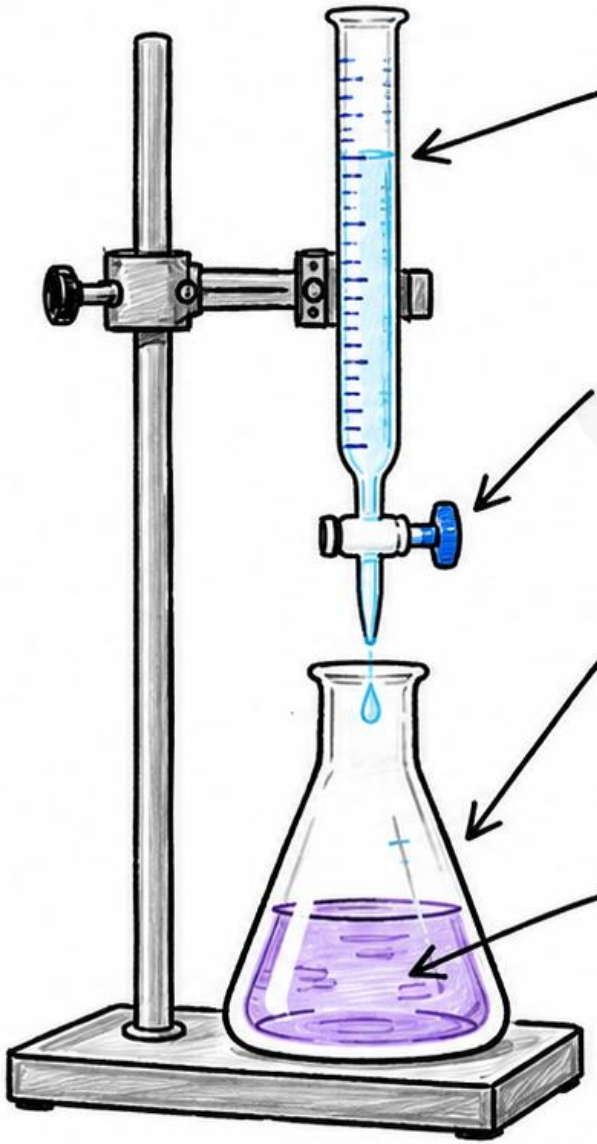
1) What are Acidifiers?

- Acidifiers, also known as acidulants, are substances that lower the pH of a solution, making it more acidic. Acidifiers can be classified based on their origin, chemical nature, or function.

2) Types and Uses

- Gastric Acidifiers: Lower the pH of gastric contents, making the stomach environment more acidic.
- Urinary Acidifiers: Lower the pH of urine, making it more acidic.
- Uses: Treatment of urinary tract infections, kidney stones, or to enhance the effectiveness of certain antibiotics.

Systemic and Formulation Acidifiers



1. Burette
Acidifying agent (standard acid)

2. Stopcock
Controls acid flow

3. Sample
Solution to be acidified

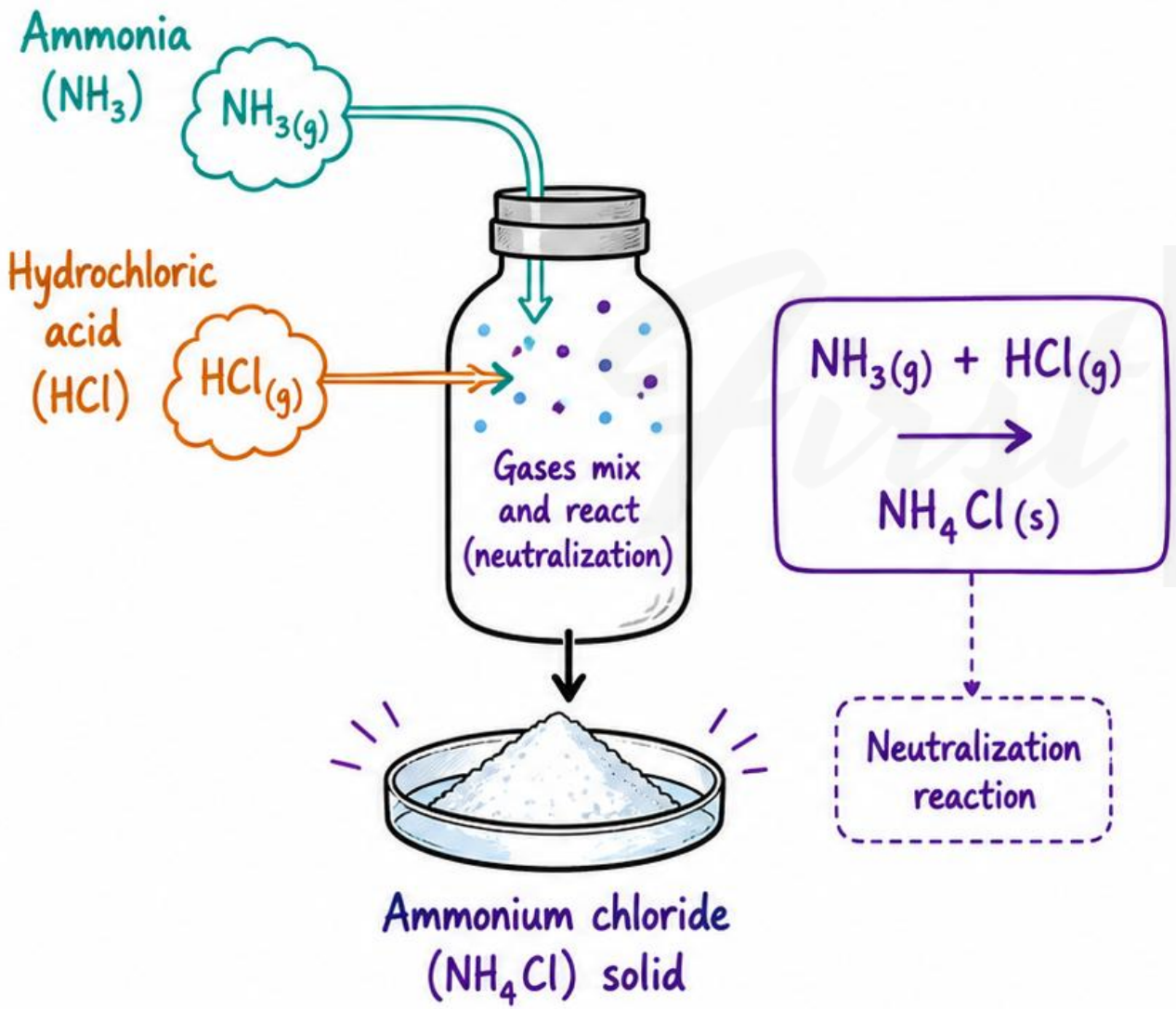
4. Indicator
Shows endpoint (color change)

1. Systemic acidifiers lower blood pH when administered, creating a more acidic internal environment.

2. Formulation acidifiers are added to dosage forms to reduce pH and stabilize or enhance product performance.

3. Both categories decrease pH, increasing acidity of solutions through controlled addition.

Ammonium Chloride: Preparation and Properties



- Ammonium chloride is prepared by the neutralization reaction between ammonia (NH_3) and hydrochloric acid (HCl).
- The gases react to form solid ammonium chloride.
- Industrially, it is often produced as a byproduct of the Solvay process, which manufactures sodium carbonate (soda ash).

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