

UNIT 9 • AMINES

9.7 Preparation of Diazonium Salts

Medium Weightage

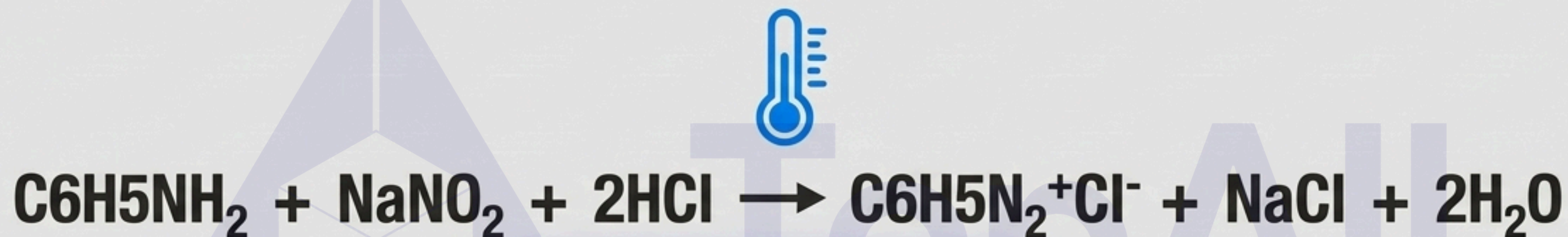
The core protocol for converting primary aromatic amines into versatile synthetic intermediates.

Defining Diazotisation

The conversion of primary aromatic amines into diazonium salts by reaction with nitrous acid.



The Diazotisation Equation



[273 - 278 K]

(Strictly ice-cold. Higher temps decompose the salt).



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$$E=mc^2$$



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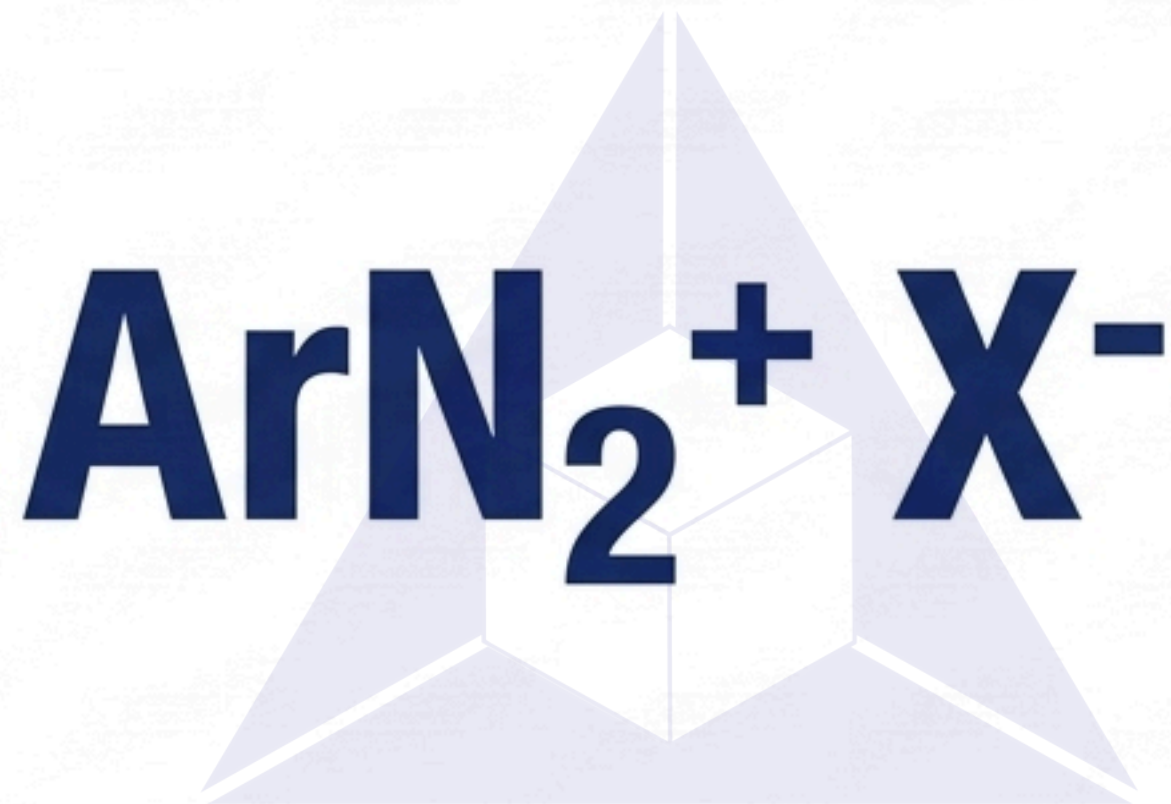
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Key Highlights

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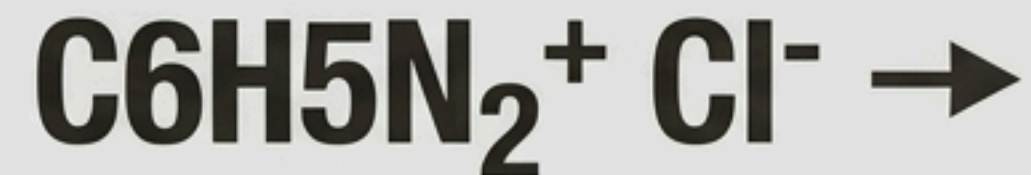
Structure & Nomenclature



Ar = Aryl group

N_2^+ = Diazonium group

X^- = Anion (Cl^- , Br^- , HSO_4^- , BF_4^-)



Benzenediazonium chloride



Benzenediazonium
hydrogensulphate

Concept Check: The Substrate Matters

Watch for this: How does the amine type change the outcome?

Aromatic Amines (Aniline) + HNO_2	→	Forms a relatively stable diazonium salt (at 273-278K) due to resonance stabilization.
Aliphatic Amines + HNO_2	→	Forms highly unstable alkyldiazonium salts that immediately liberate N_2 gas and form alcohols.

Examiners frequently test this difference to check if you understand resonance stability!

Key Takeaways

- **Reagents:** Diazotisation uses primary aromatic amines and nitrous acid (prepared in situ from $\text{NaNO}_2 + \text{HCl}$).
- **Crucial Temp:** The reaction must be strictly maintained at **273-278 K** (ice-cold) to prevent decomposition.
- **Handling:** Due to their instability, diazonium salts are generally not stored and must be used immediately after preparation.

Ready to see what these salts can do?

Try 9.8 Physical Properties of Diazonium Salts next →



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