



CHAPTER 9.5 • HYDROCARBONS

Aromatic Hydrocarbons

Exam Revision Series

Section 9.5



Defining Aromatic Hydrocarbons

[General Class: Arenes]

[Key Feature: Conjugated Ring System]

Historical Origin



The "Aroma"

Originally named because early discovered compounds possessed a pleasant, characteristic odour (Greek: aroma).

Modern Definition



The "Arene"

A specialized class of hydrocarbons featuring highly stable, unsaturated cyclic structures (rings).

Categorizing Aromatic Systems

Benzenoids

Most Common



Aromatic compounds that contain at least one intact benzene ring.

Non-Benzenoids

Specialized



Aromatic compounds that possess high unsaturation and stability, but do not contain a 6-carbon benzene ring.

Rule of Thumb: If you see the classic C₆H₆ hexagon core, it's a benzenoid.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



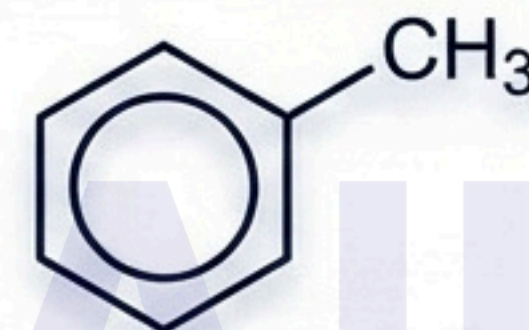
Common Benzenoid Hydrocarbons

Benzene

 C_6H_6 

The Parent Compound

Toluene

 C_7H_8 (Methylbenzene)

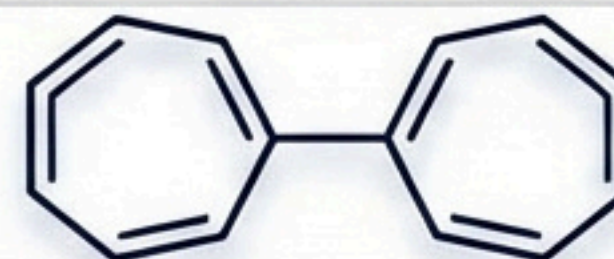
Monosubstituted

Naphthalene

 $C_{10}H_8$ 

Fused Polynuclear

Biphenyl

 $C_{12}H_{10}$ 

Isolated Polynuclear

The Unsaturation Paradox

The Expectation (Unsaturation)

Arenes have alternating double bonds, suggesting they should easily undergo addition reactions (like standard alkenes).

The Reality (Ring Retention)

Due to extraordinary stability (**delocalized resonance**), they resist addition. Instead, they prefer substitution reactions to keep their ring structure intact.

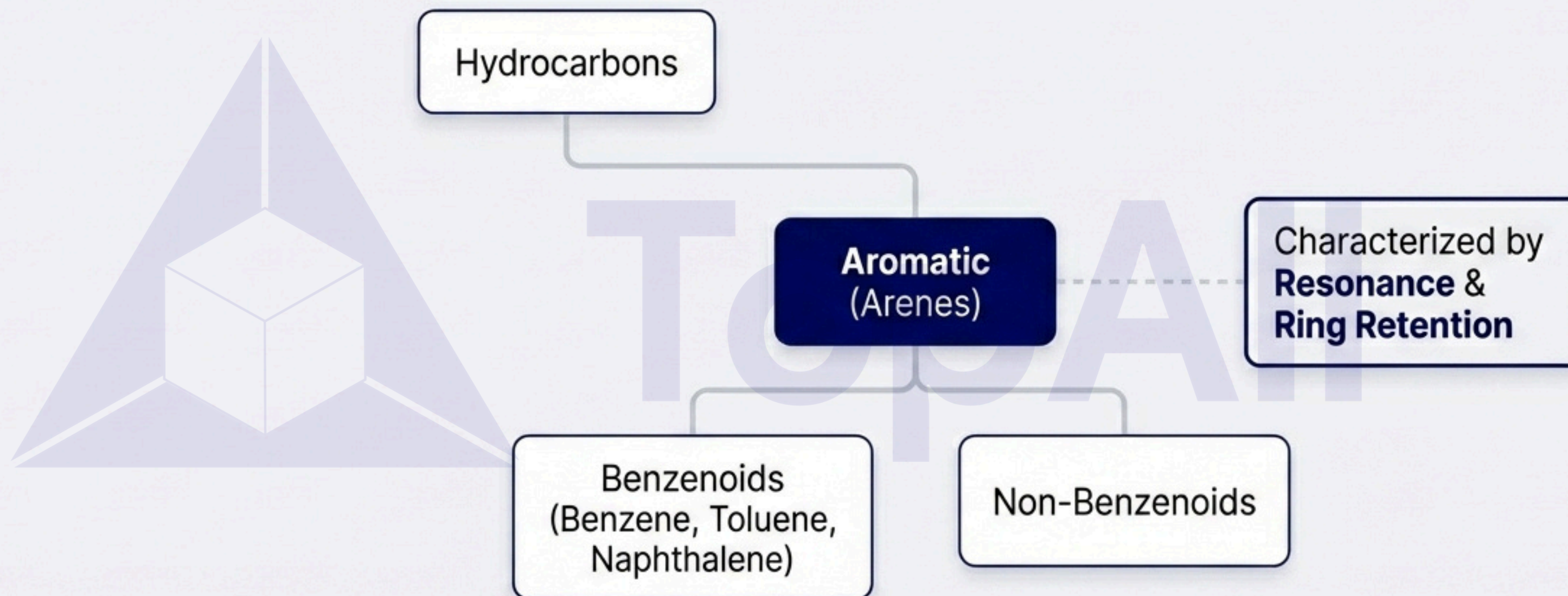
Arene + Reagent —[Addition]— **✗** (Ring Destroyed)

Arene + Electrophile —[Substitution]— **✓** (Ring Retained)

Key Takeaways

Arenes are highly unsaturated, yet they act completely differently from typical unsaturated hydrocarbons to protect their stable ring character.

Aromatic Family Concept Map



Mastery Checklist: ☒ Define 'arene', distinguish benzenoids from non-benzenoids, identify 4 key examples, and explain ring retention during reactions.



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis