

30 Arenes – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
Arenes	芳烃	_____
electrophilic substitution	亲电取代	_____
halogenoarene	卤代芳烃	_____
nitration	硝化	_____

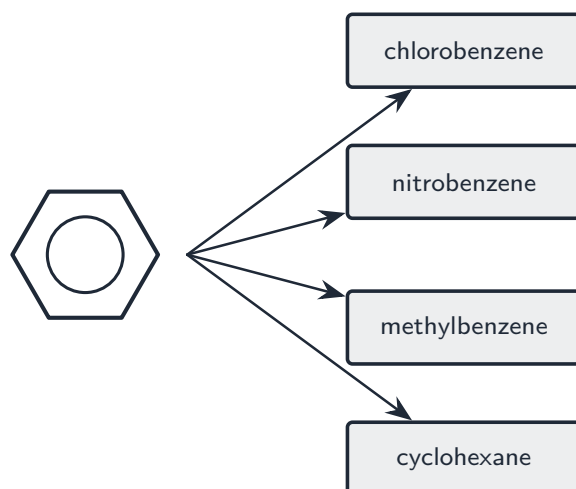
Recall

Arenes 芳烃 are aromatic hydrocarbons. Their stable, electron-rich ring reacts mostly by **electrophilic substitution** 亲电取代.

New ideas

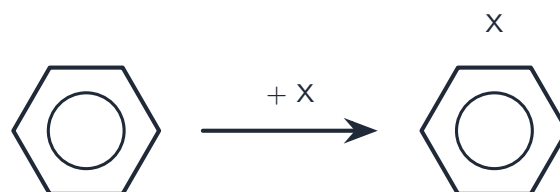
Read these first, then do the Practice.

■ 1 Reactions of benzene



Benzene gives many products, including a **halogenoarene** 卤代芳烃 (with $\text{Cl}_2/\text{AlCl}_3$) and nitrobenzene (by **nitration** 硝化).

■ 2 Keeping the ring



substitution keeps the stable ring

Because the ring is so stable, benzene reacts by *substitution* (replacing an H), keeping the ring — not by addition (except with hydrogen).

Watch out: benzene's ring is so stable it needs a *halogen carrier* (such as AlCl_3) to react with chlorine, and it does *not* decolourise bromine water the way an alkene does.

Practice

Try these in order.

30.1 What are *arenes*? [1]

30.2 How does benzene mostly react? [1]

30.3 What is *nitration*? [1]

30.4 Why does benzene react by substitution rather than addition? [1]

30.5 With which reagent does benzene undergo *addition*? [1]

30.6 Challenge. Cyclohexene decolourises bromine water instantly, but benzene does not. Explain this difference. [2]
