

31 Making halogenoarenes – 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)
halogenoarene	卤代芳烃	_____
arene	芳烃	_____
catalyst	催化剂	_____

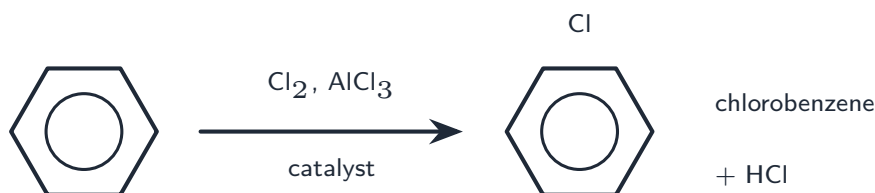
Recall

A **halogenoarene** 卤代芳烃 is an aryl halide — a halogen joined directly to a benzene ring.

New ideas

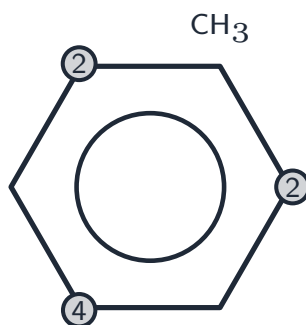
Read these first, then do the Practice.

■ 1 Making one



An **arene** 芳烃 reacts with Cl_2 or Br_2 , using AlCl_3 or AlBr_3 as a **catalyst** 催化剂. The halogen replaces a hydrogen on the ring.

■ 2 Directing



CH₃ directs to positions 2 and 4

A group already on the ring affects where the next one goes. A methyl group directs the chlorine to positions 2 and 4.

Watch out: the AlCl₃ is a *halogen carrier* (catalyst) that makes the electrophile; the halogen then substitutes a ring hydrogen. A group already on the ring *directs* where the next group adds.

Practice

Try these in order.

31.1 What is a *halogenoarene*? [1]

31.2 What reagents make a halogenoarene from benzene? [1]

31.3 What is the role of the AlCl₃? [1]

31.4 What does the halogen replace on the ring? [1]

31.5 To which positions does a methyl group direct the chlorine? [1]

31.6 Challenge. Methylbenzene reacts *faster* than benzene with chlorine, and the chlorine goes to positions 2 and 4. What does this tell you about the methyl group's effect on the ring? [2]
