

36 Identifying functional groups – 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)
functional group	官能团	_____
phenol	苯酚	_____
acyl chloride	酰氯	_____

Recall

Synthesis means joining known reactions to build a target molecule. First, you must spot the **functional group** 官能团 you are dealing with.

New ideas

Read these first, then do the Practice.

■ 1 Identification tests

reagent	result	group
bromine water, no catalyst	white precipitate	phenol / phenylamine
cold water	HCl fumes	acyl chloride
neutral FeCl ₃	purple colour	phenol

Each reagent gives a result that points to a group: a white precipitate with bromine water (no catalyst) → a **phenol** 苯酚 or phenylamine; HCl fumes with cold water → an **acyl chloride** 酰氯; a purple colour with neutral FeCl₃ → a phenol.

■ 2 Building a target



join known reactions to reach the target

Once you know the groups, join known reactions step by step to reach the target.

Watch out: match each result to its group — a white precipitate with bromine water (no catalyst) means a phenol/phenylamine, a purple colour with neutral FeCl₃ means a phenol, and HCl fumes with cold water mean an acyl chloride.

Practice

Try these in order.

36.1 What does a *white precipitate* with bromine water (no catalyst) suggest? [1]

36.2 What gives off HCl fumes with cold water? [1]

36.3 What colour does a *phenol* give with neutral FeCl₃? [1]

36.4 What does *synthesis* mean? [1]

36.5 What must you do before planning a synthesis? [1]

36.6 Challenge. A compound gives a white precipitate with bromine water *and* a purple colour with neutral FeCl₃. Identify the functional group, and explain. [2]