

10 Water — 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)		
Water	水	_____	_____	_____
anhydrous	无水	_____	_____	_____
sedimentation	沉降	_____	_____	_____
filtration	过滤	_____	_____	_____
carbon	碳	_____	_____	_____
chlorination	氯消毒	_____	_____	_____
microbes	微生物	_____	_____	_____
Fertilisers	肥料	_____	_____	_____
nitrogen	氮	_____	_____	_____
phosphorus	磷	_____	_____	_____
potassium	钾	_____	_____	_____

Recall

Water 水 is everywhere in chemistry. We need ways to **test** for it, and to make natural water **safe to drink**.

- Pure water melts at 0 °C and boils at 100 °C.
- Natural water is not pure — it has dissolved substances.

Nothing here is hard — it just lists the tests and steps.

New ideas

Read these first, then do the Practice.

■ 1 Testing for water

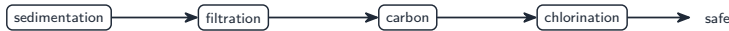
Two tests show water is **present**:

- **anhydrous** 无水 cobalt(II) chloride turns **blue** → **pink**.
- anhydrous copper(II) sulfate turns **white** → **blue**.

To show water is **pure**, check it melts at 0 °C and boils at 100 °C (any dissolved substance changes these).

■ 2 Treating drinking water

Natural water has solids, microbes and dissolved substances. To make it safe:



- **sedimentation** 沉降 and **filtration** 过滤 remove solids.
- passing through **carbon** 碳 removes tastes and smells.
- **chlorination** 氯消毒 kills harmful **microbes** 微生物.

■ 3 Fertilisers

Fertilisers 肥料 help plants grow. **NPK fertilisers** contain the three key elements: **nitrogen** 氮, **phosphorus** 磷 and **potassium** 钾.

Watch out: the two water tests give *different* colours — anhydrous copper(II) sulfate goes white → **blue**, while anhydrous cobalt(II) chloride goes blue → **pink**. These show water is *present*; the 0/100 °C check shows it is *pure*.

Practice

Try these in order.

10.1 What colour change shows water using anhydrous copper(II) sulfate? [1]

10.2 Pure water melts and boils at what temperatures? [2]

10.3 Name the step in water treatment that kills harmful microbes. [1]

10.4 What does carbon do in water treatment? [1]

10.5 What three elements do NPK fertilisers provide? [3]

10.6 Challenge. A sample of water is found to boil at 103°C. State, with a reason, whether it is pure. [2]