

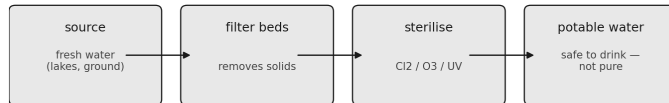
Exercise walk-through

10.1

Resources and potable water (4.10.1.1–4.10.1.3)

AQA · GCSE · Chemistry

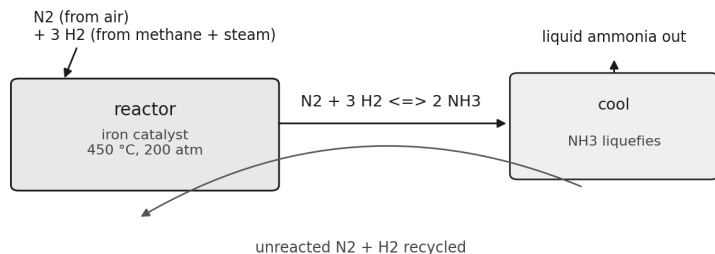
Potable water



desalination alternative: distillation or reverse osmosis — high energy cost

- Potable — safe to drink, but not pure.
- UK — source, filter beds, sterilise with chlorine, ozone or UV.
- Desalination where fresh water runs short — at an energy price.

The Haber process



- N₂ from air + H₂ from methane and steam — over iron, 450 °C, 200 atm.
- Ammonia liquefies out; unreacted gases recycle.
- (HT) every condition is a compromise of rate, yield and cost.

Exercises 2.1·2.3

2.1 Name the three sterilising agents for potable water. [3]

2.2 Which step of sewage treatment produces the sludge? [1]

2.3 (*HT*) Name the two biological methods of extracting copper from low-grade ores. [2]

Exercises 2.1·2.3

2.1 Name the three sterilising agents for potable water. [3]

2.1 Chlorine, ozone, ultraviolet light.

2.2 Which step of sewage treatment produces the sludge? [1]

2.2 Sedimentation.

2.3 (*HT*) Name the two biological methods of extracting copper from low-grade ores. [2]

2.3 Phytomining and bioleaching.

Exercises 3.1·3.3

3.1 Describe how fresh water is made potable in the UK. [4]

3.2 A desert country has only sea water. Describe the two desalination methods and their shared drawback. [4]

3.3 (*HT*) Describe phytomining from planting to metal. [4]

Exercises 3.1-3.3

3.1 Describe how fresh water is made potable in the UK. [4]

3.1 Choose a fresh source with low dissolved solids – ground, lake or river water; pass it through filter beds to remove solids and debris; sterilise with chlorine/ozone/UV to kill microbes; the result has sufficiently low salts and microbes – potable.

3.2 A desert country has only sea water. Describe the two desalination methods and their shared drawback. [4]

3.2 Distillation – boil the water and condense the vapour, leaving salts behind; reverse osmosis – pressure pushes water through a membrane the salts cannot pass; both require large amounts of energy, making the water expensive.

3.3 (*HT*) Describe phytomining from planting to metal. [4]

3.3 Grow plants that absorb copper compounds from the low-grade ore soil; harvest and burn the plants; the ash contains the copper compounds; dissolve and displace/electrolyse to obtain the copper metal.