

8.7 Persistent Organic Pollutants (POPs)

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS persistent organic pollutants 持久性有机污染物 • biomagnification 生物放大

Objective

Build the skills to answer exam questions on **persistent organic pollutants (POPs)**.

You must be able to:

- describe **POPs** 持久性有机污染物 (persistent, bioaccumulate, travel far)
- give examples (DDT, PCBs)
- explain why they are dangerous

1 Worked examples

Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

■ What POPs are

Persistent organic pollutants (POPs) are synthetic chemicals that:

- **persist** (do not break down for a long time),
- **bioaccumulate** (build up in fatty tissue),
- **travel long distances** (even to the Arctic), and
- are **toxic** (cause cancer, reproductive harm).

■ Examples

DDT (pesticide), **PCBs** (industrial), dioxins. Many are now banned or restricted (e.g. by the Stockholm Convention).

■ Why they are dangerous

Because they persist and bioaccumulate, they **build up in food chains** (biomagnification) and reach harmful levels in top predators and humans, far from where they were used.

■ A worked link

DDT sprayed decades ago still persists and accumulates in birds of prey, thinning their eggshells — an effect that led to its ban.

2 Practice

Now apply the methods above.

2.1 State two properties of POPs. [2]

2.2 Give one example of a POP. [1]

2.3 Why can POPs reach remote places like the Arctic? [1]

3 Exam-style questions

3.1 POPs are especially dangerous because they [1]

- **A** break down instantly
- **B** persist and bioaccumulate in food chains
- **C** stay only where used
- **D** are harmless

3.2 DDT was widely used decades ago and is still found in wildlife.

(a) Explain why it is still present. [2]

(b) State one harmful effect on wildlife. [1]

3.3 Explain why POPs reach their highest concentrations in top predators. [2]

Solutions

2.1 Any two: persistent, bioaccumulate, travel long distances, toxic.

2.2 Any one: DDT, PCBs, dioxins.

2.3 They persist and are carried long distances by air and water.

3.1 B — persist and bioaccumulate in food chains.

3.2 (a) DDT is persistent — it does not break down quickly, so it remains in the environment and in animals' tissues for decades. (b) Eggshell thinning in birds of prey (or reproductive harm).

3.3 POPs bioaccumulate and biomagnify — they concentrate up each trophic level — so top predators, which eat many contaminated prey, accumulate the highest levels.