



Phosphate

What's the issue?

Phosphate causes a problem called eutrophication in waters. Phosphate (a biologically available form of phosphorus) is essential to the growth of biological tissue, but is usually in short supply in waters. Hence, when phosphate is added the system responds with an algal 'bloom'. Later when the algae decay this places a great demand for oxygen on the water, damaging organisms such as fish.

Taking the measurement



Who? Registered users with a HANNA phosphate checker issued by the iDee program



Your safety Remember DO NOT go alongside the river or loch if: you can't swim, the water is too deep or fast moving, or if you are alone.



How long does it take? 10 minutes



Equipment needed HANNA HI736 phosphate checker; reagents, glass vial



How to measure Turn the unit on by pressing the button. 'C1 Add' appears and 'Press' to signify it is ready. Fill the cuvette with 10 mL of water, place into meter and close the cap. Press the button to zero the concentration. 'C2 add' appears. Remove the cuvette and add one sachet of reagent. Cap the cuvette and shake for 2 minutes to mix until all powder dissolves. Replace the cuvette in the meter. Press and hold the button until the timer displays then the concentration of phosphorus in ppb (parts per billion of concentration, or $\mu\text{g/L}$). [Link to the manual here.](#)



Tips If you are aiming to return to one place to make repeat measurements the data is more useful if you can sample from exactly the same spot each time.

Tell me more about the problem?

Phosphate comes from both point (such as waste outlet pipes, sewage treatment works and septic tanks) or diffuse sources (from land based activities such as excessive use of mineral fertilisers). The Water Framework Directive provides guidelines on the maximum permissible concentrations of phosphate for waters of different types above which aquatic ecosystem conditions of good ecological status are likely to be impaired:

For ivers of high alkalinity (predominantly chalk streams in S England): < 120 $\mu\text{g/L}$

For all other geological types, subdivided by altitude above sea level:

- altitude higher than 80 m: < 40 $\mu\text{g/L}$ phosphate

- altitude lower than 80 m: < 50 $\mu\text{g/L}$ phosphate

For standing waters e.g. lochs: < 70 $\mu\text{g/L}$ total phosphorus