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HOW TO READ **pH** CORRECTLY

Your expert guide

HOW TO READ **pH** CORRECTLY

Welcome to our expert guide on how to read pH correctly. This is the first of four expert guides which we will produce to help save you time and help inspire the next generation of scientists.

Our guide has been written by our resident, expert team here at Philip Harris. Our experts have over 20 years' experience, working in a school science environment. So when you speak to Philip Harris, you're not just speaking to a fellow scientist but someone who also understands the challenges you face on a daily basis...

Meet our **EXPERTS**

Meet **Nadine Dyson** and **Jackie McKie**, they are your Technical Experts

Nadine Dyson

Hi, I'm Nadine and I'm here to help you make the most of the resources you've bought from us.

Before joining Philip Harris, I enjoyed working as a Senior Science Technician for 10 years. This has given me the sound knowledge of the Science curriculum, how prep - rooms operate and everything else related to practical Science.

During my time as a Senior Science Technician I set up two brand new Prep Rooms and re-organised others. This means I have the knowledge and understanding to support you and your team to design your dream prep room.

Jackie McKie

Hi, I'm Jackie, a chemist, here to help with your technical queries.

I started my career as a Lab Technician in the Petrochemical industry, working in Technical Service and Quality Control before joining the research and development team as a Development Chemist.

Prior to joining the Philip Harris team, I spent the last 7 years working in a school as a Technician in both the Science and Design and Technology faculties.

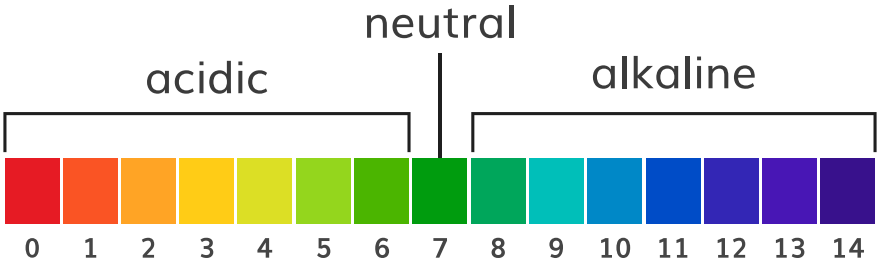
I am here to offer advice and support when you need it.

HOW TO READ **pH** CORRECTLY

What is **pH?**

pH is the measure of the acidity or basicity of an aqueous solution. It is measured on a scale of 0 – 14. 0 being strongly acidic, 7 being neutral, 14 being strongly alkaline.

There are various ways to measure pH within the laboratory, ranging from easy to use indicator papers to digital pH meters



Universal indicator test paper

The universal indicator test papers cover the pH scale from 1 – 14. They are easy to use and give an instant result by way of a colour change. The test strip is simply dipped into the test solution and then compared to the colour chart.

Method

Decant a small portion of the test solution into a small beaker. Take a single test strip and dip into the test solution.

Compare colour of the test strip to the colour chart.

The colour chart will usually be provided on the dispenser or packaging of the test papers.

Universal indicator

Universal Indicator works on the same principle of the indicator test papers, but is in liquid form.

Method

Decant a small amount of solution under test into a small beaker or test tube.

Add a few drops of universal indicator.

Compare the colour of the solution to the colour chart.

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pH Meter

The most accurate way of testing and recording the pH of a solution is with a pH meter. These can be hand held or bench top meters.

Before use it is essential to calibrate the pH meter. This can be done by measuring the pH of a buffer solution with a known pH. Buffer solutions of pH 4,7,10 can be bought and used for calibration.

The method for calibration can usually be found in the instruction booklet for the pH meter in use.

pH SOLUTIONS

pH 4.0	**B8R04758**
pH 7.0	**B8R04761**
pH 10.0	**B8R04764**

B8R06312

Method

Decant the solution under test into a small beaker.

Calibrate the pH meter, washing the electrode with distilled water in between solutions.

Place the electrode into the test solutions.

The reading will be displayed as a number on the pH meter.

Maintaining the electrode

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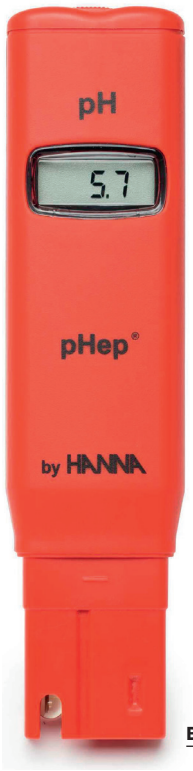
The electrode on a pH meter needs to be maintained in good condition, and stored in a special soloution. A well maintained electrode can last for upto two years. The hand held models usually have a cap for storing the electrode in, that needs filling with storage solution. If the meter has not been used for a long time, the cap should be checked regularly to ensure it does not dry out. The bench top model electrode,is, as illustrated usually stored in the solution in a beaker.

If you do not have electrode storage solution, then you could use pH4 buffer solution.

Some pH electrodes have a fill hole for refreshing the electrolyte in the pH electrode; other pH electrodes do not have a fill hole. If your pH electrode has a fill hole the fill hole cap should be removed during calibration and use.

This allows for the correct amount of reference electrolyte to flow into the sample. Replace the fill hole cap when done with the electrode at the end of the day.



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