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EPSRC
Engineering and Physical Sciences Research Council

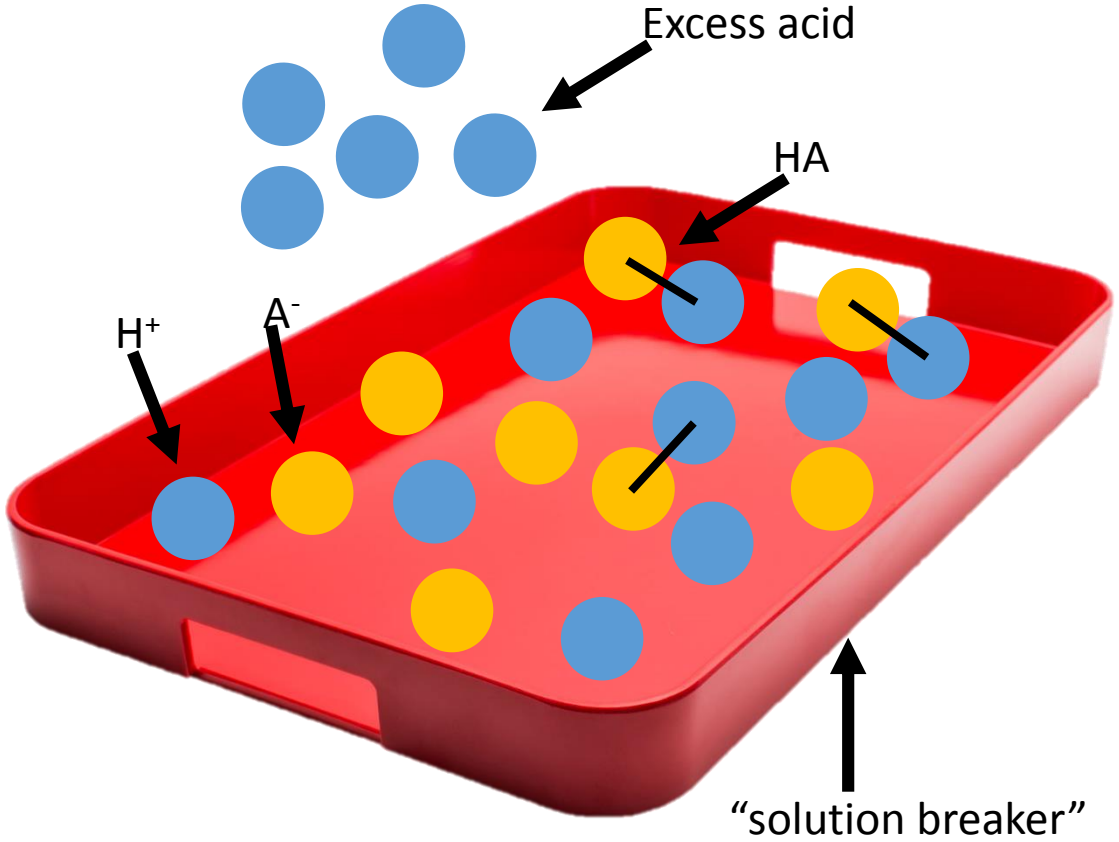
A-Level chemistry revision session: Buffers

Prepared by the EPSRC CDT in Sustainable Chemistry

You are “the acid”, it is your job to raise the overall number of H^+ in the “solution”. To do this you must add the excess acid

Write up a “lab report” on the experiment answering the following questions

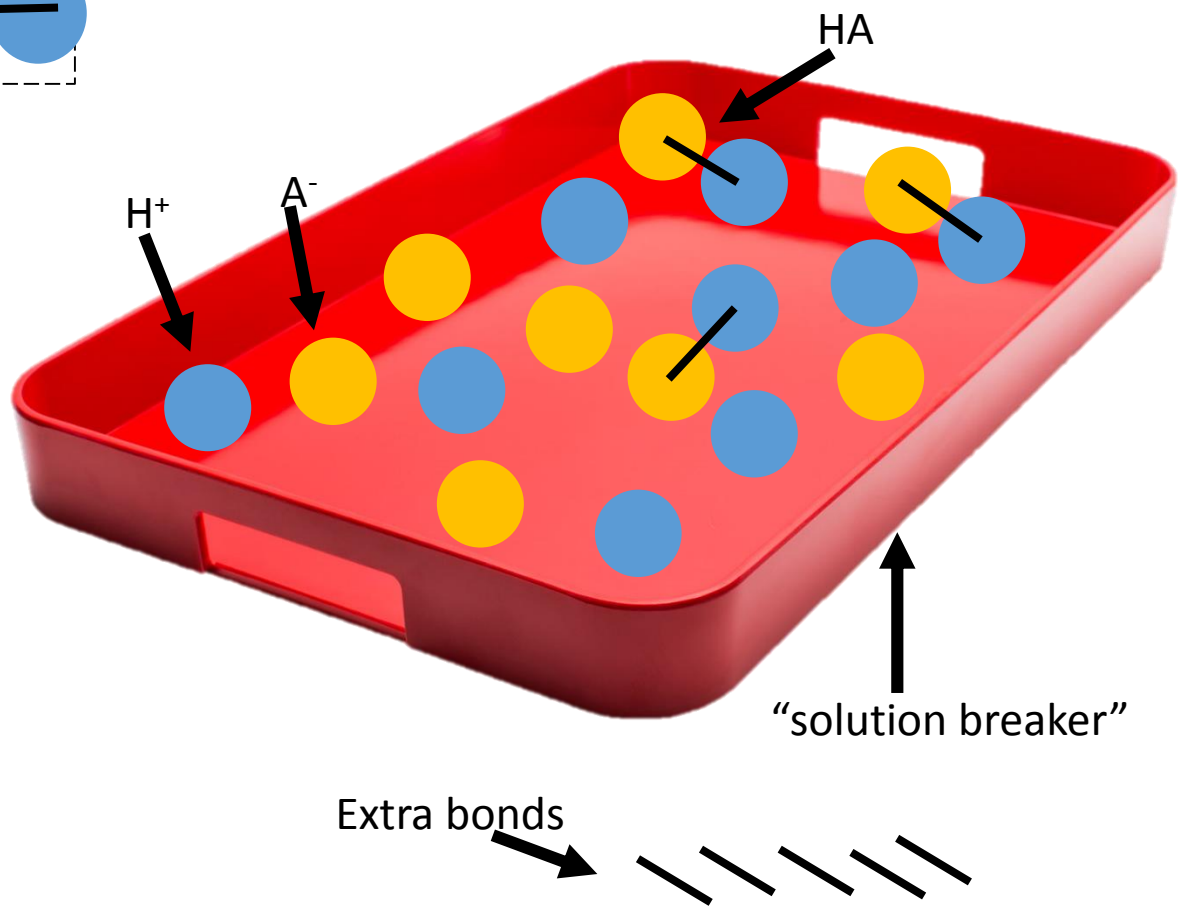
- What was the initial number of H^+ in the solution?
- What happened during the experiment?
- What was the final number of H^+ in the solution?
- Why has this happened?



You are “the equilibrium”, it is your job to ensure the number of H^+ stays the same. To do this you must use the your extra bonds and the A^-
in the “solution” to make more

Write up a “lab report” on the experiment answering the following questions

- What was the initial number of H^+ in the solution?
- What happened during the experiment?
- What was the final number of H^+ in the solution?
- Why has this happened?



Buffers – exam questions

Calculations

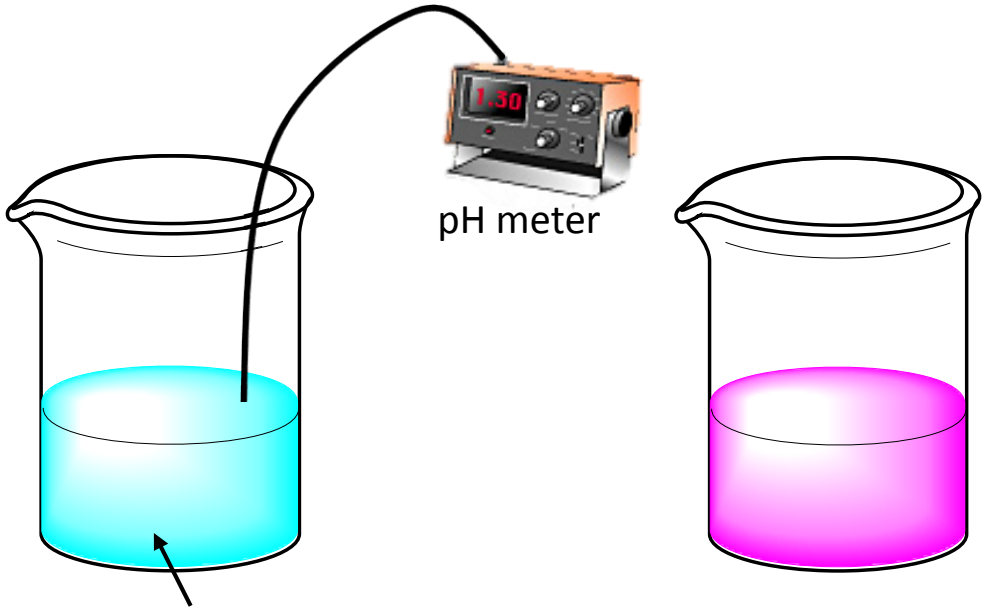
Applications of buffers - Shampoo

Nowadays many shampoos are described as “pH balanced” in their adverts, however after some market research Tresemmé have discovered that many of their customers don’t understand what that means.
As Research and Development scientists you have been asked to issue a press release explaining to the public what this means.

You may want to include:

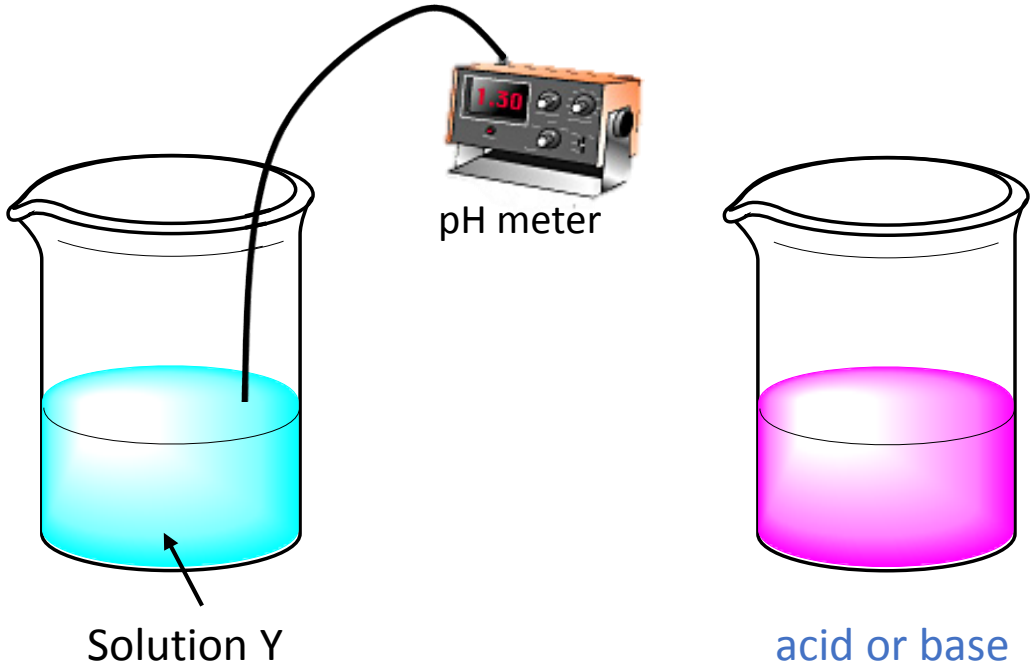
- What pH hair your hair and scalp are naturally
- How Tresemmé make sure their shampoo meets this natural pH
- Other examples of this effect happening in nature and biology

Buffers – experiment



- Add the acid or base dropwise to solution X and record the pH.
- Plot a graph of pH vs. number of drops of acid/base
- Compare this graph with the other pair
- Who has been using a buffer?

Buffers – experiment



- Add the acid or base dropwise to solution Y and record the pH.
- Plot a graph of pH vs. number of drops of acid/base
- Compare this graph with the other pair
- Who has been using a buffer?

Buffers – exam questions

Explanations