Sound of Science
(理聲)

C.C.C. Heep Woh College
Newsletter of
Science Society
December, 2025

Feeling Sour?

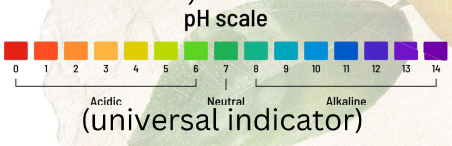
1. Definition of Acid

An acid is a substance that releases hydrogen ions (H^+) when dissolved in water, it has a sour taste and the pH value is less than 7. Acids can be identified by their ability to turn blue litmus paper red, pH meter, pH paper that all can measure the acidity of a substance.

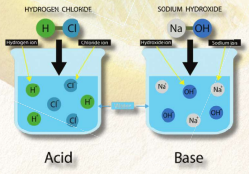
2. How pH value works?

pH is a scale from 0 to 14 that measures how acidic or basic a solution is.The full name is “potenz Hydrogen” (German) means “Hydrogen concentration”. A lower pH, with the higher conc. of H^+ ions. A higher pH, with the lower conc. of H^+ ions and the higher conc. of OH^- ions.

- Acidity: Solutions with a pH less than 7 are acidic. Examples include vinegar and lemon juice. The lower the pH, the more acidic the acid.
- Neutral: Soultion with equal number of hydrogen ions (H^+) and hydroxide (OH^-) ions.
- Basicity: Solutions with a pH greater than 7 are basic (or alkaline).



(universal indicator)

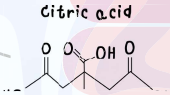


3. Common acid

i.**Hydrochloric acid** (pure form hydrogen chloride)

- corrosive, strong acid, non-flammable
- Appearance: colourless , transparent liquid with a strong odor
- Corrosivity: corrosive to metals and tissues, produce toxic fumes
- For steel processing, manufacturing plastics, etc
- Used in some cleaning products, to maintain pH levels in swimming pools

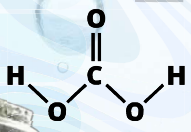
ii. **Citric Acid**



- Colourless weak organic acid
- Found in citrus fruits to provide a tangy flavour
- Used as a preservative
- Flavour enhancer in food and beverages for a sour taste
- In cleaning products to remove hard water stains and descaling

iii. **Carbonic acid**

- Weak inorganic acid formed when carbon dioxide dissolves in water
- Unstable and will be converted back to carbon dioxide and water
- Used for the fizz in carbonated drinks
- For maintaining the pH value in human blood



The most acidic acid HSbF6

Fluoroantimonic acid (*$HSbF_6$*) is the strongest superacid
What is it made of?
A mix of hydrogen fluoride (*HF*) and antimony pentafluoride (*SbF_5*).

Where does its extreme acidity come from?
A proton being left very free and reactive after the two components interact. It's acidity is 180 times stronger than sulfuric acid.

Quantified using the Hammett acidity function (H_0),(pH becomes obsoleteat these levels) fluoroantimonic acid can reach a value of -28, making it ten quadrillion (10^{16}) times stronger than 100% sulfuric acid. This extreme reactivity allows it to dissolve glass, protonate otherwise inert substances like hydrocarbons, and react explosively with water. Due to its intense corrosivity, it must be stored in specialized containers lined with PTFE (Teflon).

Drop HSbF6 on paper

Drop HSbF6 on a chicken leg

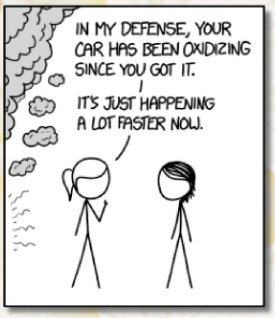
Monthly Question

If you can answer all the Question correctly, you will receive a small gift!
Deadline: 12/12/2025

November Quiz Answer

All awnsers to last month's monthy quiz's questions are A

Relaxing Zone



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Spotted Dove:

BOW BEFORE DA BIRD

Ans:

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