SCIENCE · CHEMISTRY AGES 12–15

The pH Scale

How acidic or alkaline is it? Everyday substances placed on the scale from 0 to 14.

pH 0
Strong acid

Hydrochloric acid at 1 mol/dm³. Corrosive: laboratory use only.

pH 1.5
Gastric juice

Your stomach makes hydrochloric acid to help digest food.

pH 2
Lemon and lime juice

Citric acid gives citrus fruit its sour taste.

pH 5
Coffee

Weakly acidic: about 1,000 times less acidic than lemon juice.

pH 5.6
Clean rain

Normal rain is slightly acidic, even without pollution.

pH 7
Pure water: neutral

Neither acidic nor alkaline at 25 °C.

pH 8
Seawater

Slightly alkaline.

pH 10.5
Milk of magnesia

An antacid: a base that neutralises excess stomach acid.

pH 12
Household ammonia

An alkaline cleaner. Irritant: keep away from eyes.

pH 14
Strong alkali

Sodium hydroxide at 1 mol/dm³. Corrosive: laboratory use only.

Each step is ×10

pH 3 is 10 times more acidic than pH 4 and 100 times more acidic than pH 5. Lower pH means more acidic; higher pH means more alkaline.

Indicator colours

Universal indicator: red for strong acids, green at neutral, purple for strong alkalis. Litmus: red in acid, blue in alkali.

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