

Reactions

2. Acids and alkalis

CONCEPT 1

ACIDS AND ALKALIS

NOTES

Acids and alkalis are not just the chemicals you find in the laboratory. Although acids and alkalis can be dangerous, many are actually useful and not dangerous at all. We eat and drink them; we use them around the house; and they are often used in cleaning products.

Some examples of everyday acids include:

- orange juice
- lemon juice
- vinegar
- black coffee
- tea
- fizzy drinks
- fertilisers
- tomato
- pure rain

Some are not very acidic at all, such as tomatoes, tea and coffee. Some are more acidic, such as lemon juice and vinegar.

However, all of these are less acidic than the acids you would find in a laboratory. These are called laboratory acids. Examples of these lab acids are: hydrochloric acid (HCl), sulphuric acid (H_2SO_4), and nitric acid (HNO_3).

Some examples of everyday alkalis include:

- toothpaste
- baking soda / bicarbonate of soda
- soap
- shampoo
- indigestion tablets
- bleach
- oven cleaners
- drain unblockers
- almost every cleaning product

Some everyday alkalis are more alkali, such as oven cleaners and drain unblockers.

The alkalis you would find in a laboratory - laboratory alkalis include: sodium hydroxide (NaOH), calcium hydroxide ($\text{Ca}(\text{OH})_2$), and any other chemical ending in hydroxide.

Acids are corrosive. Acids can be considered dangerous as they can corrode materials. This means they have a chemical reaction with other materials and can 'wear them away' (make them change into other materials – products). They do not melt (which is a common misconception)!

Alkalis are caustic. They are actually more hazardous than acids, as they are hard to rinse an alkali from the skin because it becomes soapy.

The most dangerous acids and alkalis are known as hazardous. The least dangerous acids and alkalis are known as irritants. If we get these on our skin, we wash off with water.

Everyday acid	Name of acid found inside
Vinegar	Ethanoic acid (or Acetic acid)
Fizzy drinks	Carbonic acid
Fertilisers	Nitric acid
Tea	Tannic acid
Everyday alkali	Name of alkali found inside
Baking soda	Sodium hydrogen carbonate
Oven cleaners and caustic soda (drain unblockers)	Sodium hydroxide
Indigestion tablets	Magnesium hydroxide
Lab acid	Formula
Hydrochloric acid	HCl
Sulfuric acid	H ₂ SO ₄
Nitric acid	HNO ₃
Lab alkali	Formula
Sodium hydroxide	NaOH
Calcium hydroxide	Ca(OH) ₂
Potassium hydroxide	KOH