

Name:

Class:



Scheelite is an ore of tungsten. The main compound in scheelite has the percentage composition by mass Ca = 13.9%, W = 63.9%, O = 22.2%.

Calculate the empirical formula of this compound.

	Ca	W	O
Mass	13.9	63.9	22.2
Ar	40	184	16
Moles	0.347	0.347	1.387
Divide by smallest	1	1	3.99
Ratio	1	1	4

Empirical formula = **CaWO₄**

In terms of electrons, what is reduction?

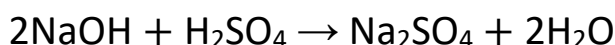
Reduction is the gain of electrons

What is the electronic configuration of a potassium **ion**?

2, 8, 8

A student used 25.0 cm³ of sulfuric acid of concentration 0.650 mol/dm³. She added 0.500 mol/dm³ sodium hydroxide solution until the acid was completely neutralised.

The equation is:



i. Calculate the amount, in moles, of sulfuric acid used.

$$0.650 \times 0.025 = 0.01625 \text{ mol or } 0.0163 \text{ mol}$$

ii. Calculate the amount, in moles, of sodium hydroxide needed to neutralise this amount of sulfuric acid.

$$0.01625 \text{ mol} \times 2 = 0.0325 \text{ mol}$$

iii. Calculate the volume, in cm³, of sodium hydroxide solution needed to neutralise this amount of sulfuric acid.

$$0.0325 \times 1000 \div 0.500$$

$$\text{volume} = \mathbf{65 \text{ cm}^3}$$

A student tests a solution to find out if sulfate ions are present.

What reagents should the student add?

Acid (accept any named except sulfuric acid).

Barium chloride solution.

A solution of Na₂SO₄ has a concentration of 0.62 mol/dm³. Convert this into g/dm³.

$$\text{g/dm}^3 = \text{mol/dm}^3 \times \text{Mr}$$

$$\text{g/dm}^3 = 0.62 \times 142$$

$$\text{g/dm}^3 = \mathbf{88.04}$$

Accept 88 g/dm³