

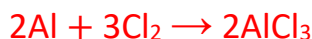
Name:

Class:



Aluminium reacts with chlorine gas to form aluminium chloride, AlCl_3 .

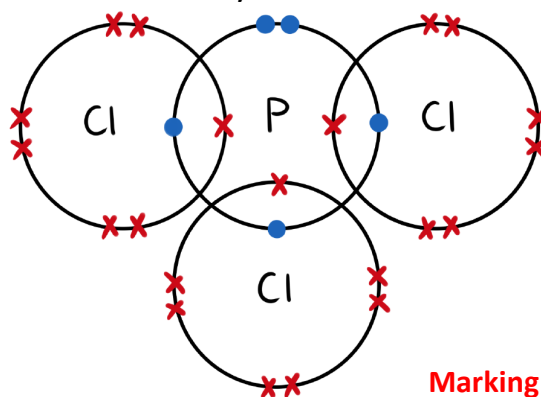
Write the balanced equation for this reaction.



Explain what is meant by the term covalent bond.

The attraction between a shared pair of electrons and a set of positive nuclei.

Draw the dot and cross diagram to show the bonding in a molecule of phosphorus trichloride, PCl_3 . Show outer electrons only.



Marking note: accept any correct version.

State the formula of a sulfate ion.



State the formula of aluminium oxide.



Complete and balance the equation for this reaction:



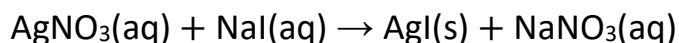
How do ionic compounds conduct electricity?

When the compound is molten or aqueous the ions are able to move and carry charge

How does graphite conduct electricity?

Graphite has delocalised electrons which can move and carry charge.

Calculate the percentage atom economy for the production of silver iodide in this reaction. The equation for the reaction is:



Give your answer to three significant figures.

$$\text{Atom economy} = (\text{Mr of desired product} \div \text{Mr of reactants}) \times 100$$

$$\text{Atom economy} = (235 \div 320) \times 100$$

$$\text{Percentage atom economy} = 73.4\%$$

Give **one** reason why reactions with a high atom economy are used in industry.

Any **one** from:

- For sustainable development. Allow to reduce waste.
- For economic reasons.
- To produce a high(er) percentage of useful product.