AQA – Properties of Period 3 elements and their oxides – A2 Chemistry P1

1. June/ 2021/Paper_1/No.3

0 3 This question is about elements in Period 3 and their compounds.

0 3 . 1 When a piece of sodium is added to 200 cm^3 of water in a large beaker a vigorous reaction occurs. The temperature of the water increases by 25 °C

Give an equation, including state symbols, for the reaction of sodium with water.

Suggest why it is dangerous to react a similar piece of sodium with 10 cm^3 of water in a boiling tube.

[2 marks]

Equation

_____

Why it is dangerous _____

_____

_____

0 3 . 2 Give an equation for the reaction of phosphorus(V) oxide with water.

Suggest a pH for the solution formed.

[2 marks]

Equation

_____

pH _____

0 3 . 3 Explain, in terms of crystal structure and bonding, why silicon(IV) oxide has a higher melting point than phosphorus(V) oxide.

[4 marks]

_____

_____

_____

0 3 . 4 An element in Period 3 forms an oxide that is insoluble in water.
This oxide reacts with sulfuric acid and with aqueous potassium hydroxide.

Give the formula for this oxide.

Give an equation for the reaction of this oxide with sulfuric acid.

[2 marks]

Formula _____

Equation

0 3 . 5 Give the formula of a hydroxide of an element in Period 3 used in medicine.

[1 mark]

0 3 . 6 Identify the element in Period 3, from sodium to chlorine, that has the largest atomic radius.

[1 mark]