

- 3** The data in the table below show the melting points of oxides of some Period 3 elements.

	Na ₂ O	P ₄ O ₁₀	SO ₂
T_m / K	1548	573	200

- 3 (a)** In terms of structure and bonding, explain why

- 3 (a) (i)** sodium oxide has a high melting point

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(2 marks)

(Extra space)

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- 3 (a) (ii)** sulfur dioxide has a low melting point.

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(2 marks)

(Extra space)

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- 3 (b)** Explain why the melting point of P₄O₁₀ is higher than the melting point of SO₂

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(2 marks)

(Extra space)

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- 3 (c)** Write equations for the reactions of Na_2O and P_4O_{10} with water. In each case give the approximate pH of the resulting solution.

Equation for Na_2O

pH

Equation for P_4O_{10}

pH

(4 marks)

- 3 (d)** Write an equation for the acid–base reaction that occurs when Na_2O reacts with P_4O_{10} in the absence of water.

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(1 mark)

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