

AQA – Energetics – AS Chemistry P2

1. No.1(1.1-1.2)

0 1

This question is about 1-chloropropane.

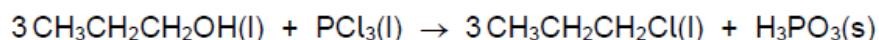
0 1

. 1 Define the term standard enthalpy of formation.

[2 marks]

0 1

. 2 The equation for a reaction used to manufacture 1-chloropropane is

The enthalpy change for this reaction, ΔH , is -114 kJ mol^{-1} **Table 1** contains some standard enthalpy of formation data.**Table 1**

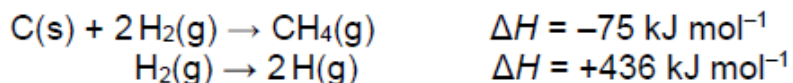
Substance	$\text{PCl}_3(\text{l})$	$\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}(\text{l})$	$\text{H}_3\text{PO}_3(\text{s})$
$\Delta_f H^\ominus / \text{kJ mol}^{-1}$	-339	-130	-972

Calculate a value for the standard enthalpy of formation of propan-1-ol using the enthalpy change for the reaction and data from **Table 1**.

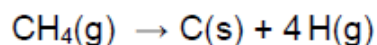
[3 marks]Standard enthalpy of formation _____ kJ mol^{-1}

2. No.21

Some enthalpy change data are shown.



What is the enthalpy change, in kJ mol^{-1} , for the following reaction?



[1 mark]

A -947

☐

B -361

☐

C +361

☐

D +947

☐

3. No.22

The temperature changed from 21.8°C to 19.2°C during a calorimetry experiment.

The uncertainty of each reading of the thermometer is $\pm 0.1^\circ\text{C}$

What is the percentage uncertainty in the temperature change?

[1 mark]

A 0.5%

☐

B 1.0%

☐

C 3.8%

☐

D 7.7%

☐

4. No.23

An experiment is done to determine the enthalpy of combustion of a fuel using a calorimeter containing water.

b = mass of fuel burned / g

w = mass of water heated / g

ΔT = temperature rise of water / K

M_r = relative molecular mass of fuel

c = specific heat capacity of water / J K⁻¹ g⁻¹

Which expression gives the enthalpy of combustion (in J mol⁻¹), assuming there is no heat loss?

[1 mark]

A $-\frac{c w \Delta T M_r}{b}$

☐

B $-\frac{c b \Delta T M_r}{w}$

☐

C $-\frac{c b w M_r}{\Delta T}$

☐

D $-\frac{c b w \Delta T}{M_r}$

☐