

EXAMINATION

1. The following information is given for the reaction of ethane with chlorine:

$\text{C}_2\text{H}_6 + \text{Cl}_2 \rightarrow \text{C}_2\text{H}_5\text{Cl} + \text{HCl}$

Standard enthalpy of formation, $\Delta_f H^\ominus$ / kJ mol⁻¹

C_2H_6	-84
$\text{C}_2\text{H}_5\text{Cl}$	-120
HCl	-92

Standard enthalpy of atomization, $\Delta_a H^\ominus$ / kJ mol⁻¹

C	715
H	218
Cl	121

Calculate the standard enthalpy of atomization of chlorine.

Standard enthalpy of formation, $\Delta_f H^\ominus$ / kJ mol ⁻¹	
C_2H_6	-84
$\text{C}_2\text{H}_5\text{Cl}$	-120
HCl	-92

Standard enthalpy of atomization, $\Delta_a H^\ominus$ / kJ mol ⁻¹	
C	715
H	218
Cl	121

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