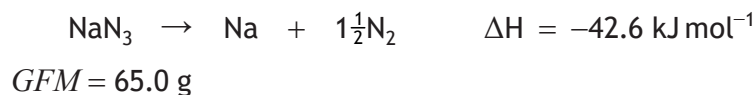


2. Air bags in cars are intended to prevent injuries in a car crash. When an air bag is activated, a series of reactions takes place.
- (a) In the first reaction, sodium azide decomposes into sodium metal and nitrogen gas. The nitrogen gas inflates the air bag.
- (i) An ignitor supplies the energy required for the reaction to occur.
- State the term used to describe the minimum kinetic energy required by particles before a reaction can occur successfully.

1

- (ii) A typical car air bag contains 80 g of sodium azide,  $\text{NaN}_3$ .
- Calculate the energy released, in kJ, when 80 g of sodium azide decomposes.

1



- (iii) Sodium azide is an ionic compound.
- State the charge on the azide group ion.

1

[Turn over





<b>MARKS</b>	DO NOT WRITE IN THIS
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