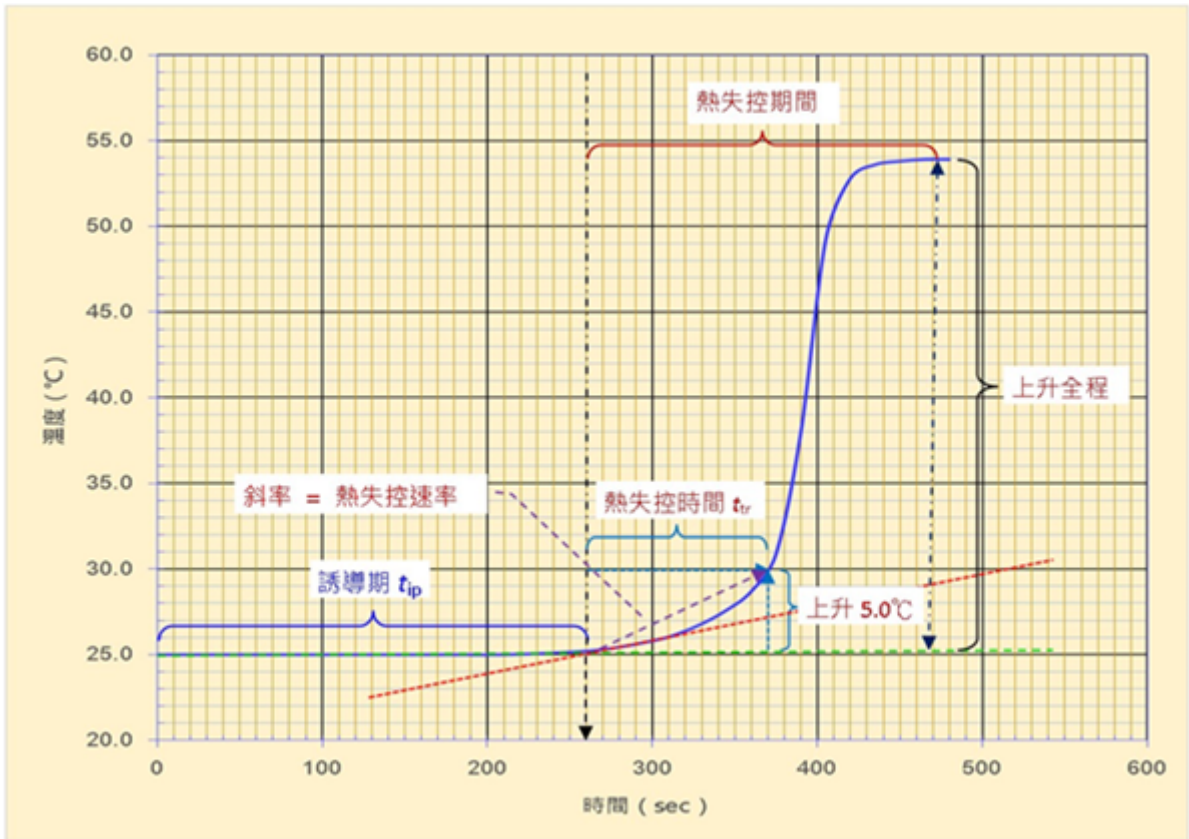


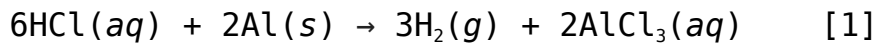
(二) 實驗結果

實驗結果顯示，反應的 induction period 與反應物濃度有關。圖中顯示了反應溫度隨時間的變化曲線。圖中標註了 (1) 誘導期 (2) 熱失控時間 (3) 上升斜率。圖中標註了 t_{ip} 和 t_{tr} 。圖中標註了 $t_{ip} = 260 \text{ sec}$ 。



實驗結果顯示，反應的 induction period 與反應物濃度有關。

實驗結果顯示，反應的 induction period 與反應物濃度有關 [1]。



實驗結果顯示，反應的 induction period 與反應物濃度有關 [HCl] 與 [HCl]₀ 的關係。

[HCl]_{effect} 與 [HCl] 的關係 (1) t_{ip}^{-1} 與 [HCl] 的關係 (2) 與 [HCl]₀ 的關係 (3) 與 [HCl]_{effect} 的關係 (4) 與 [HCl]₀ 的關係 (5) 與 k 的關係 (6) 與 t_{ip}^{-1} 的關係 (7) 與 k 的關係 (8)

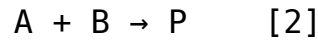
$t_{ip}^{-1} = \theta [\text{HCl}]$ (1) $t_{ip}^{-1} = \theta [\text{HCl}]$ (2) $t_{ip}^{-1} = \theta [\text{HCl}]$ (3) $t_{ip}^{-1} = \theta [\text{HCl}]$ (4) $t_{ip}^{-1} = \theta [\text{HCl}]$ (5) $t_{ip}^{-1} = \theta [\text{HCl}]$ (6) $t_{ip}^{-1} = \theta [\text{HCl}]$ (7) $t_{ip}^{-1} = \theta [\text{HCl}]$ (8)

[HCl]_{effect} 與 [HCl]_{effect} 的關係 [HCl]_{effect} = [HCl] - [HCl]₀ (5) 與 k 的關係 (6) 與 t_{ip}^{-1} 的關係 (7) 與 k 的關係 (8)

[HCl]_{effect} 與 k 的關係 (7) 與 k 的關係 (8)

(b) Reaction

rate law equation power law [2] [3] [4] 8



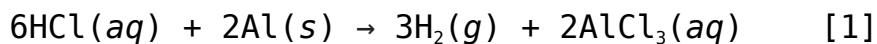
$$r = -\frac{d[A]}{dt} = -\frac{d[B]}{dt} = \frac{d[P]}{dt} \quad [3]$$

$$r = k[A]^m[B]^n \quad [4]$$

r [A] [B] A B M t m n A B partial reaction order m + n (1) (2) (3) (4) k 9

pseudo first order r = k[A][B] B r = k[A][B] = k'[A] k' = k[B] [B] >> [A] B r = k[sucrose] r = k[sucrose][H+][H2O] H+ H2O 8

[1] [A] k k' [5]



$$r = k[HCl]^m[Al]^n = k'[HCl]^m \quad [5]$$

5.0 5.0 t_tr sec r_tr / sec r_tr = 5.0 / (371 sec - 260 sec) = 0.045 / sec

initial reaction rate 5

2. 2000 mL of 0.1 M AlCl₃ solution is mixed with 2000 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. [6]

$$\frac{r_1}{r_2} = \frac{k[\text{HCl}]_1^m[\text{Al}]_1^n}{k[\text{HCl}]_2^m[\text{Al}]_2^n} = \frac{k'[\text{HCl}]_1^m}{k'[\text{HCl}]_2^m} = \frac{k'2[\text{HCl}]_2^m}{k'[\text{HCl}]_2^m} = 2^m \quad [6]$$

$$\frac{r_1}{r_2} = \frac{k'2[\text{HCl}]_2^m}{k'[\text{HCl}]_2^m} = 2^m \quad [7]$$

3. 2000 mL of 0.1 M AlCl₃ solution is mixed with 2000 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. [7]

4. (1) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with (2) 25.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (3) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 3.10 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (4) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 5.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (5) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 10.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.

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5. (1) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with (2) 25.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (3) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 3.10 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (4) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 5.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. (5) 25.00 cm³ of 0.1 M AlCl₃ solution is mixed with 10.00 cm³ of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.

n

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- 20-25 mL of 0.1 M AlCl₃ solution is mixed with 100 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. [125 mL of 0.1 M PE solution is mixed with 3 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.]
- 600 mL of 0.1 M AlCl₃ solution is mixed with 100 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. [50 g of 0.1 M AlCl₃ solution is mixed with 30 cm x 10 cm x 1 cm of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.]
- 10 mL of 0.1 M AlCl₃ solution is mixed with 25 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution. [100 mL of 0.1 M AlCl₃ solution is mixed with 15 cm of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.]
- 100 mL of 0.1 M AlCl₃ solution is mixed with 100 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.
- 100 mL of 0.1 M AlCl₃ solution is mixed with 100 mL of 0.1 M HCl solution. Calculate the concentration of Al³⁺ ions in the resulting solution.

6. 1.2 cm × 2.5 cm 20 Office

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- 100
- 3 mm 5 mm 8 mm 3-5
- conc. hydrochloric acid, 12 M 2 500 mL
- hydrochloric acid 1 500 mL 6.5 M, 6.0 M, 5.5 M, 5.0 M, 4.5 M

12 M

Hydrochloric acid¹⁰

1 1 20 L 1 1

2 1

n

-
- 100
-
-

n

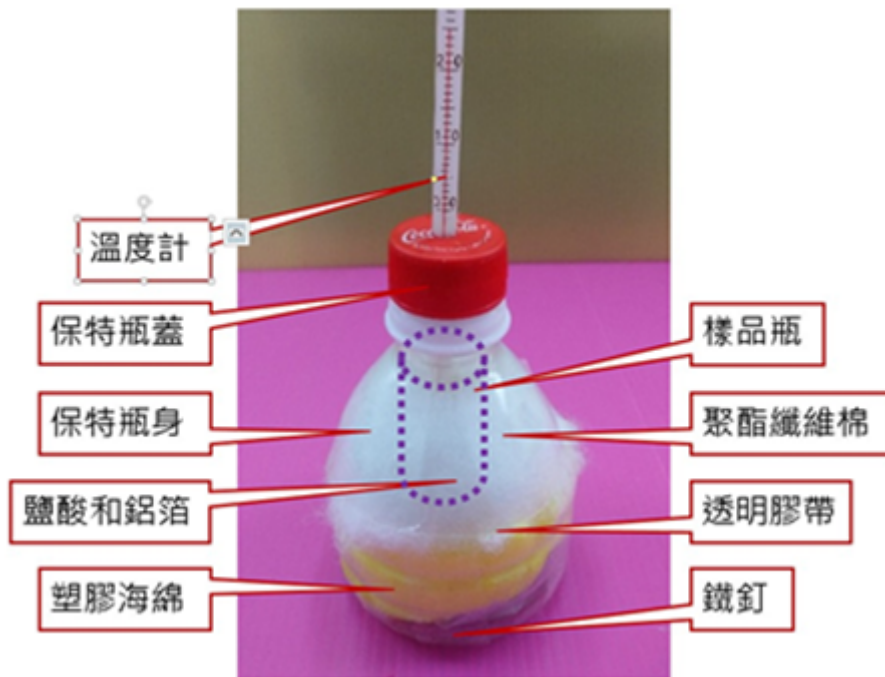
-
-
-
-

n

1. 20-25 mL 1 600 mL 1 1 50 g 100 1 8 cm x 7 cm x 4 cm 1 1

2. (1) (2)

1. 將溫度計插入保特瓶蓋中，並用透明膠帶固定。
 2. 將保特瓶蓋插入保特瓶身中，並用透明膠帶固定。
 3. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 4. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 5. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 6. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 7. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 8. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 9. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 10. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。



1. 將溫度計插入保特瓶蓋中，並用透明膠帶固定。

2. 將保特瓶蓋插入保特瓶身中，並用透明膠帶固定。

3. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

4. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。
 5. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

6. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

7. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

8. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

9. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

10. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

11. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

12. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

13. 將保特瓶身插入樣品瓶中，並用透明膠帶固定。

