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The document contains a table of chemical elements and their atomic weights, along with some calculations involving gas constants and molecular weights.

### Table: Atomic Weights

<table>
<thead>
<tr>
<th>Element</th>
<th>Atomic Weight</th>
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<tbody>
<tr>
<td>H</td>
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<td>He</td>
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<td>O</td>
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<tr>
<td>K</td>
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<tr>
<td>I</td>
<td>126</td>
</tr>
</tbody>
</table>

### Calculations

- **Gas Constant:**
  
  \[ R = 0.0821 \text{ atm L mol}^{-1} \text{ K}^{-1} = 8.314 \text{ J mol}^{-1} \text{ K}^{-1} \]
  
- **Avogadro's Number:**
  
  \[ N_A = 6.02 \times 10^{23} \text{ mol}^{-1} \]
  
- **Energy Calculations:**
  
  \[ 1.0 \text{ atm} = 760.0 \text{ mmHg} = 101325 \text{ Pa} \]
  
  \[ R_H = 109678 \text{ cm}^{-1} \]
\[ H^\circ = m = 9.33 \text{ molal} \]

\[ \Delta \text{H}^\circ = \Delta U^\circ + n_T \Delta T \quad \text{(W)} \quad \Delta H^\circ = \Delta U^\circ - n_T \Delta T \quad \text{(Y)} \]

\[ \Delta H^\circ = \Delta U^\circ + (RT)^{\text{Ang}} \quad \text{(p)} \]

\[ \Delta H^\circ = \Delta U^\circ + \Delta n_T \times R \times T \quad \text{(W)} \quad \Delta H^\circ = \Delta U^\circ - \Delta n_T \times R \times T \quad \text{(Y)} \]

\[ \Delta H^\circ = \Delta U^\circ \text{(D)} \]

\[ \text{KI (p)} \quad \text{C}_2\text{H}_6 \quad \text{CH}_4 \quad \text{NH}_3 \text{ (D)} \]

\[ \text{CHCl}_3 \text{ (p)} \quad \text{CH}_2\text{Cl}_2 \quad \text{CH}_3\text{Cl} \quad \text{C}_2\text{H}_4\text{Cl}_2 \text{ (D)} \]

\[ 2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO} \]

\[ \text{a} = 4.17 \text{ atm mol}^2 \]

\[ \text{b} = 0.0371 \text{ L mol}^2 \]

\[ \text{KCl \% = 70.73} \text{ (Y)} \]

\[ X_{\text{KCl}} = 0.5 \text{ (W)} \quad \text{KCl \% = 70.73} \quad X_{\text{KCl}} = 0.1 \text{ (D)} \]

\[ m = 9.33 \text{ molal} \quad \text{X}_{\text{KCl}} = 0.5 \text{ (W)} \quad \text{KCl \% = 70.73} \quad X_{\text{KCl}} = 0.1 \text{ (D)} \]

\[ \text{H}_2 \text{ (p)} \quad \text{CO} \text{ (W)} \quad \text{He} \text{ (Y)} \quad \text{CH}_4 \text{ (D)} \]

\[ \text{H}_2 \text{O(g)} \rightarrow \text{H}_2\text{O(l)} \]

\[ \text{K}\text{Cl} \text{ (p)} \quad \text{H}_2 \text{O} \text{ (p)} \quad \text{H}_2 \text{O} \text{ (l)} \quad \text{H}_2 \text{O} \text{ (g)} \]

\[ \text{F}\text{O}_2 \text{ (p)} \quad \text{F}\text{O}_2 \text{ (l)} \quad \text{F}\text{O}_2 \text{ (g)} \]
\[ SO_3(g) \rightarrow S(s) + 3/2O_2(g) \quad \Delta H^\circ = 395.2 \text{ kJ} \]
\[ 2SO_2(g) + O_2(g) \rightarrow 2SO_3(g) \quad \Delta H^\circ = -198.2 \text{ kJ} \]

\[ S(s) + O_2(g) \rightarrow SO_2(g) \]

\[ f_d \quad \text{d.r.} \quad 125 \text{ mL} \]

\[ P_d = 740 \text{ torr} \]

\[ P_s = 1 \text{ atm} \]

\[ \Delta T = 0.071 \text{ atm} \]

\[ T_c = 13.71^\circ \text{C} \]

150 (\( \bar{\beta} \))

125 (\( \bar{\gamma} \))

140 (\( \bar{\varphi} \))

250 (\( \bar{\iota} \))

\[ P_A = 0.056 \text{ atm} \]

\[ P_B = 0.071 \text{ atm} \]

\[ \Delta H^\circ = -198.2 \text{ kJ} \]

\[ \Delta H^\circ = 395.2 \text{ kJ} \]

\[ \Delta H^\circ = 0.071 \text{ atm} \]

\[ T_c = 13.71^\circ \text{C} \]

\[ S(s) + 3/2O_2(g) \rightarrow SO_2(g) \]

\[ \Delta H^\circ = -198.2 \text{ kJ} \]

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\[ T_c = 13.71^\circ \text{C} \]
\[
\text{Rate} = k[A][B] \quad \text{Rate} = k[B][C] \quad \text{Rate} = k[C] \\
\text{Rate} = k[A][B][C]
\]

\[
\begin{array}{|c|c|c|c|}
\hline
[A] & [B] & [C] & \text{Rate M/s} \\
0.1 & 0.1 & 0.1 & 4.8 \times 10^{-3} \\
0.2 & 0.1 & 0.1 & 4.8 \times 10^{-3} \\
0.1 & 0.2 & 0.1 & 9.6 \times 10^{-3} \\
0.1 & 0.1 & 0.3 & 1.44 \times 10^{-2} \\
\hline
\end{array}
\]

\[
\text{A} + \text{B} + 2\text{C} \rightarrow \text{products}
\]

\[
H_2(g) + F_2(g) = 2\text{HF}(g)
\]

\[
\text{mol} L^{-1} (\text{mol} L^{-1}, \text{mol} L^{-2})
\]
الحمض 

\[
\text{H}^+ (p) \quad \text{وا خ (w)} \quad H_2 \text{O}^+ (D)
\]

: 

\[
\begin{align*}
\text{Kw} & = 10^{-14} \\
\text{pH} & = 6.69
\end{align*}
\]

: 

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\begin{align*}
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\text{pH} & = 6.69
\end{align*}
\]
: \( \text{AN}_{6p, 4f, 4d, 6s} \)' \( \text{Kor} \) \( \text{Op}, y' \) \( \text{DE} \).

- \( 4d > 6s > 4f > 6p \) \( \text{b} \)
- \( 6p > 4f > 6s > 4d \) \( \text{y} \)
- \( 4f > 4d > 6s > 6p \) \( \text{D} \)

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<th>تزأغلا</th>
<th>بحلا</th>
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<tr>
<td>لؤاف</td>
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<td>P</td>
</tr>
<tr>
<td>لؤاف</td>
<td>(A) لؤاف</td>
<td>s</td>
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<tr>
<td>لؤاف</td>
<td>(A) لؤاف</td>
<td>P</td>
</tr>
<tr>
<td>لؤاف</td>
<td>(B) لؤاف</td>
<td>d</td>
</tr>
</tbody>
</table>

: \( \text{Li}_{5(19K)} \) \( \text{A}_{(17Cl)} \) لعت لنر هب فلاك دو هبلاز .\( \text{De} \)

- 1 نر هب فلاك دو هدابش (D)
- 1 نر هب فلاك دو دا قاش (Y)

\( \text{A}_{4.1 \times 10^{-5}} \) \( \text{cm} \) لآلاك دو لآلاك قسيم52 دو LAOP لو ظلأة يأف ليس يدج .\( \text{DE} \)

: i أك

7 \( \text{b} \) 4(W) 6 (y) 3 (D)

: i سيف ناكم .\( \text{De} \)

.\( i \) سيف يأف لإك كرك لتي ديف كرف ديف كرف (D)
.\( i \) سيف يأف لإك دو لياك تي ديف كرف (Y)
.\( i \) سيف يأف لإك كرك كرك لتي ديف كرف (W)
.\( i \) سيف يأف لإك كرك كرك لتي ديف كرف (b)