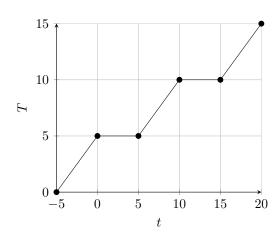# Contents

Permbledhje: Tremujori - 2

Kristian Blido

13-03-2021

9 Fizika Termike

9.1 Ndryshimi i Gjendjes dhe Energjise

$$
\begin{array}{rlll}
]-5,0[& \rightarrow & \text{Ngrohje} & Q = c \cdot m \cdot \Delta T \\
]0,5[& \rightarrow & \text{Shkrirje} & Q = \lambda \cdot m \\
]5,10[& \rightarrow & \text{Ngrohje} & Q = c \cdot m \cdot \Delta T \\
]10,15[& \rightarrow & \text{Avullim} & Q = q \cdot m \\
]15,20[& \rightarrow & \text{Ngrohje} & Q = c \cdot m \cdot \Delta T
\end{array}
$$

9.2 Energjia e Brendshme

$$
U = \begin{cases}
\frac{3}{2} \cdot R \cdot T \cdot n, & 1 \quad \text{atom} \\[2mm]
\frac{5}{2} \cdot R \cdot T \cdot n, & 2 \quad \text{atome} \\[2mm]
3 \cdot R \cdot T \cdot n, & 3+ \quad \text{atome}
\end{cases}
$$

$$
\begin{aligned}
R &= N_A & \cdot & & k_B \\
&= 6.02 \cdot 10^{23} \tfrac{1}{mol^1} & \cdot & & 1.38 \cdot \tfrac{m^2 kg}{10^{23} \cdot s^2 \cdot K^1} \\
&= 8.31 \tfrac{m^2 \cdot kg}{s^2 \cdot K \cdot mol} \\
&= 8.31 \tfrac{J}{mol \cdot K}
\end{aligned}
$$

$$
n = \frac{m}{M} = \frac{N}{N_A}
$$

$$
T(K) = T(^{\circ}C) + 273.15
$$

9.3 Energjia Kinetike

$$
\epsilon_k = \frac{3}{2} \cdot k_B \cdot T
$$

9.4 Ligji i gazeve

$$
P \cdot V = N \cdot k_b \cdot T
$$
$$
P \cdot V = n \cdot (N_A \cdot k_B) \cdot T
$$
$$
P \cdot V = n \cdot R \cdot T
$$

9.5 Parimi i pare i Termodinamikes

$$
Q = \Delta U + A
$$

"Sasia e nxehtesise qe merr nje sistem shkon pjeserisht per ndryshimin e energjise se brendshme dhe pjeserisht per kryerjen e punes"

9.6 Izoproceset

9.6.1 Procesi Ciklik

- 2 rruge Termodinamike
- Sisteme *Quasi-Statike*

$$\left\{\begin{array}{ccc} T_1 & = & T_2 \\ \Delta U & = & 0 \\ Q & = & A \end{array}\right\}$$

9.6.2 Procesi Izotermik

$$\frac{P_1}{P_2} = \frac{V_2}{V_1}$$

$$\left\{\begin{array}{ccc} T_1 & = & T_2 \\ \Delta U & = & 0 \\ Q & = & A \end{array}\right\}$$

9.6.3 Izobarik

$$\frac{V_1}{V_2} = \frac{T_1}{T_2}$$

$$\left\{\begin{array}{ccc} P_1 & = & P_2 \\ Q & = & \Delta U + A \end{array}\right\}$$

9.6.4 Izohorik

$$\frac{P_1}{T_2} = \frac{P_2}{T_2}$$

$$\left\{\begin{array}{ccc} V_1 & = & V_2 \\ A & = & 0 \\ Q & = & \Delta U \end{array}\right\}$$

9.6.5 Procesi Adiabatik

$$\left\{\begin{array}{ccc} Q & = & 0 \\ A & = & -\Delta U \end{array}\right\}$$

9.7 Parimi i dyte i Termodinamikes

"Nuk mund te ekzistoje motorri i perjetshem"

$$A = Q_i - Q_f$$

$$A = T_i - T_f$$

Rendimenti $\rightarrow \eta$

$$\left\{\begin{array}{c} \eta = \frac{A}{Q_i} \\ \eta < 1 \end{array}\right\} \left\{\begin{array}{c} \eta = \frac{A}{T_i} \\ \eta < 1 \end{array}\right\}$$