

Contents

9	Fizika Termike	2
9.1	Ndryshimi i Gjendjes dhe Energjise .	2
9.2	Energjia e Brendshme	2
9.3	Energjia Kinetike	2
9.4	Ligji i gazeve	2
9.5	Parimi i pare i Termodinamikes . . .	2
9.6	Izoproceset	3
9.6.1	Procesi Ciklik	3
9.6.2	Procesi Izotermik	3
9.6.3	Izobarik	3
9.6.4	Izohorik	3
9.6.5	Procesi Adiabatik	3
9.7	Parimi i dyte i Termodinamikes . . .	3

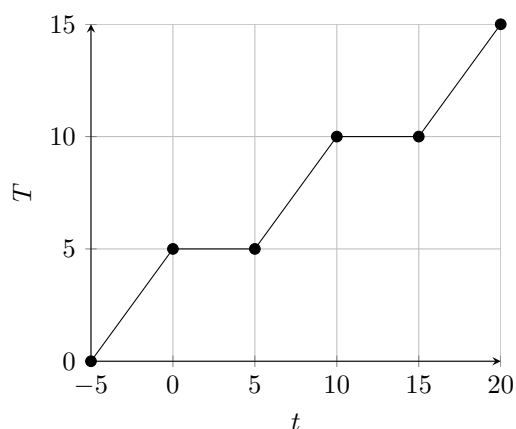
Permbledhje: Tremujori - 2

Kristian Blido

13-03-2021

9 Fizika Termike

9.1 Ndryshimi i Gjendjes dhe Energjise



$] - 5, 0[$	\rightarrow	Ngrohje	$Q = c \cdot m \cdot \Delta T$
$] 0, 5[$	\rightarrow	Shkrirje	$Q = \lambda \cdot m$
$] 5, 10[$	\rightarrow	Ngrohje	$Q = c \cdot m \cdot \Delta T$
$] 10, 15[$	\rightarrow	Avullim	$Q = q \cdot m$
$] 15, 20[$	\rightarrow	Ngrohje	$Q = c \cdot m \cdot \Delta T$

9.2 Energjia e Brendshme

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

$$\begin{aligned} R &= N_A \cdot k_B \\ &= 6.02 \cdot 10^{23} \frac{1}{\text{mol}} \cdot 1.38 \cdot \frac{\text{m}^2 \cdot \text{kg}}{10^{23} \cdot \text{s}^2 \cdot \text{K}} \\ &= 8.31 \frac{\text{m}^2 \cdot \text{kg}}{\text{s}^2 \cdot \text{K} \cdot \text{mol}} \\ &= 8.31 \frac{\text{J}}{\text{mol} \cdot \text{K}} \\ n &= \frac{m}{M} = \frac{N}{N_A} \\ T(\text{K}) &= T(^{\circ}\text{C}) + 273.15 \end{aligned}$$

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*

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

9.6.2 Procesi Izotermik

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

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

9.6.3 Izobarik

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

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

9.6.4 Izohorik

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

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

9.6.5 Procesi Adiabatik

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

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 $\rightarrow \eta$

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