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Latsol FFK 6

1. Jml partikel dan kerapatan molekul dari 1kg CO_2 dg volume $2.10^6 L$
C = 12, O = 16.

Jml partikel = n.L

$= \frac{Massa}{Mr} . L$

$= \frac{1000}{44} . 6,02.10^{23}$

$= 136,8182.10^{23}$

Rapat molekul $= \frac{136,8182.10^{23}}{2.10^6}$ ✓

$= 68,4091.10^{17} . L^{-1}$

$= 68,4091.10^{20} m^{-3}$

2. Diketahui: $V_0 = 150 cm^3 = 1,5.10^{-4} m^3$
$T_0 = 27°C$
$T_t = 100°C$
$\Delta t = 73°$
$\alpha = 2,3.10^{-5}/°C$
$\gamma = 4,4.10^{-4}/°C$

* Vakhir bejana → $V_t = V_0(1 + 3\alpha . \Delta T)$
$= 1,5.10^{-4}(1 + 6,9.10^{-5} . 73)$
$= 1,5075555.10^{-4} m^3$

* Vakhir air → $V_t = V_0(1 + \gamma . \Delta T)$
$= 1,5.10^{-4}(1 + 44.10^{-4} . 73)$
$= 1,54018.10^{-4} m^3$

* V air tumpah $= (1,54018 - 1,5075555).10^{-4}$
$= 0,0406245.10^{-4} m^3$
$= 4.06245 cm^3$.

3. Diketahui: $P_t = 3/2\ P$
$T_t = 5/3\ T$
$V_t = ?$

* $\frac{PV}{T} = \frac{P_t . V_t}{T_t}$

$\frac{PV}{T} = \frac{\frac{3}{2}P . V_t}{\frac{5}{3}T}$

$V = \frac{9}{10} V_t$

$V_t = \frac{10}{9} V$ //

4. Diketahui: $P_0 = 2 atm$, $T_0 = 200°C = 473K$
$V_1 = 2V_0$, $V_2 = V_0$

* Isotermal → $P_0 . V_0 = P_1 . V_1$
$2 . V_0 = P_1 . 2V_0$
$P_1 = 1 atm$ → Tekanan akhir

* Isobarik → $\frac{V_1}{T_0} = \frac{V_2}{T_2}$

$\frac{2V_0}{473} = \frac{V_0}{T_2}$ → $T_2 \approx 236,5 K$
$= -36,5°C$ → T akhir