

Unit 8 – Ch 13 – Behavior of Gases & Manometers

BEHAVIOR OF GASES:

- 1) **Pressure (*P*)** – kiloPascals (_____)
 - Due to _____ of gas particles with container _____ or with _____.
- 2) **Volume (*V*)** – The _____ occupied by gases.
 - Conversion Unit: _____
- 3) **Temperature (*T*)** – Measure of *average* _____.
 - _____ **Kelvin** temperature = _____ kinetic energy.
 - **Temperature Conversions:**
 - _____ AND _____
- 4) **# of Particles (*n*)** – Measured in _____.

STP CONDITIONS:

- **Standard Temperature & Pressure (STP):**
 - _____ AND _____
- **Atmospheric Pressure (atm):**
 - _____ collision of gas _____.
 - 1 atm = _____
 - 1 atm = _____
 - 1 atm = _____
- **Molar Volume @ STP:**
 - Gases have _____ **volumes** and contain _____ **number of moles** at **standard** _____ and _____.
 - **Volume** = 1 mol of gas @ STP = _____

MANOMETERS:

➤ DEFINITION -

- Filled with **liquid** _____.
- **“OPEN-END” Manometers: (3 scenarios)**
 - 1) $P_{\text{gas}} =$ _____ Drawing:
 - 2) $P_{\text{gas}} =$ _____ Drawing:
 - 3) $P_{\text{gas}} =$ _____ Drawing:
- **“CLOSED-END” Manometers:**
 - Drawing:
 - “___” and “___” points are at the _____ level → Pressures are _____.
 - “x” = _____ pressure and “y” = _____ pressure.
 - $P_{\text{gas}} =$ _____ of risen _____.

➤ Ex #1) What pressure (**kPa**) of argon gas is in a closed-end manometer if the height of mercury rises 50.5 cm?

➤ Ex #2) A manometer filled with (He) gas causes a (Hg) level 399 mm higher on the atmosphere arm. If the atmospheric pressure is 795 mmHg, what is the pressure (**kPa**) of gas?

➤ Ex #3) (Hg) level is 546 mm higher in the gas arm of a manometer than in the atmosphere arm. What is the pressure (**kPa**) of gas if the atmospheric pressure is 88.9 kPa?